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*Unless otherwise noted, these papers were presented at the Seventh Annual Meeting of the Osteopathic Academy of Orthopedists, Kansas City, Mo., February 26-28, 1948.

EXTRACTS FROM THE PRESIDENT'S ADDRESS*

The Osteopathic Academy of Orthopedists has been one of the prime factors in the establishment of standards and opportunities for the training of men, interested in the specialty of orthopedics. The concentrated programs fostered by this Academy over a period of 7 years have had a most positive influence in bringing to the profession the idea that orthopedics, as such, is truly a specialized field. Unless one is devoting the major portion of his time and thinking to the problems therein, he is likely to be doing a most inferior job of giving the best to the patient where this service is requested.

If we accept the definition of orthopedics as given by Sir Robert Jones, e.g., "The treatment by manipulation, operation, re-education and rehabilitation of the injuries or diseases of the locomotor system," we can see how closely related this field of practice is to the original concept of osteopathy.

Recently a young man came to me and said, "I wish you would teach me orthopedics." I said, "I will, provided that you and I can come to some agreement as to what is meant by orthopedics. If you are interested in only the surgical aspect of orthopedics, I am not interested in teaching you because the greatest part of orthopedics is nonsurgical." I called his attention to the fact that at the Massachusetts General Hospital out of 4,390 fractures, which Wilson[1] reported, in only 8.7 per cent was surgical intervention necessary. After I had given him the proper conception of orthopedics, he decided that he would be a psychiatrist. The study of orthopedics was too long and hard work for him. I imagine 10 years from now he will find that psychiatry is an equally long and tedious study.

Getting back to our definition of orthopedics, we soon realize that osteopathic physicians are, and should be, particularly adept in developing into good orthopedists. Osteopathic physicians, generally speaking, are well qualified in the art of manipulation. This is essentially a major start for anyone who is interested in the field. I think it is much easier to develop orthopedists from the ranks of the osteopathic profession than from the advocates of old-school medicine, because fundamentally there is a basic mechanical training in osteopathy which is essential to the development of orthopedics. Contrariwise, I do not believe that an orthopedist can be a good orthopedist, as defined, without using the fundamental concepts of osteopathy, including manipulation.

Now as to the future of this Academy and the orthopedic physicians in our profession.

First, I would hope that we can continue our identity as a specialty organization, assuming our responsibility in the proper education of osteopathic physicians in the most advanced methods in orthopedics.

Secondly, I would hope that we would encourage in our schools the organization of complete depart-

*Delivered at the Seventh Annual Convention of the Osteopathic Academy of Orthopedists, Kansas City, Mo., February 26, 1948.

1. Wilson, P. D., ed.: Experience in the management of fractures and dislocations (based on an analysis of 4390 cases). J. B. Lippincott Co., Philadelphia, 1938, p. 4.

ments of orthopedics. Members of this Academy should devote some time, effort, and money in developing and helping to departmentalize this specialty in our colleges.

Thirdly, I would hope that out of such meetings as this that there would grow a desire on the part of a few to study virgin fields in this specialty, as defined, such as re-education and proper care of post-traumatic lesions, the kinesiology and physiology of locomotion and their influence on the body's economy, and a host of other studies which some day will be done by individuals who are truly interested in this field of practice.

Fourthly, I would hope that a strong cohesive group be continued within the profession as advanced guard orthopedists, maintaining high standards of professional attainment and, at the same time, giving opportunities to any of the members of the osteopathic profession who are interested in this specialty a chance to develop their aptitude, giving encouragement and direction wherever necessary.

There are many hospitals in need of trained orthopedists; many communities could truly use the services of well-qualified men in this field. Since osteopathic physicians qualify to participate in the health care program of the Veterans Administration and the U. S. Public Health Service, and in view of the growing number of voluntary hospital and medical care insurance plans in which osteopathic physicians are eligible, it is time that the profession awaken to the necessity and the opportunity for service in the specialty field of orthopedics.

Lastly, I would trust that all members of the Academy will maintain a solid front for the advancement of the osteopathic profession and each lend his influence wherever possible to the solidification of organized osteopathy during a period when there seems to be a desire of some to divide and weaken the various forces which have made our profession strong. With the Academy members as parts of the organized whole and the important contribution each member can play, the osteopathic profession has no heights to which it cannot climb.

C. Robert Starks, D.O.

Clinical Observations in Sciatica*

An Analysis of 200 Cases

C. ROBERT STARKS, D.O.
Denver

An analysis of 200 cases in private practice, picked at random from the much larger number I have seen in the last few years, reveals that pain may be found at the origin of or along the distribution of the sciatic nerve, and may result in mild or severe symptoms. I found in this series that the following causative factors may be in whole or in part responsible for the symptoms:

1. Articular lesions in the lumbar area. (This is probably the most frequent cause.)
2. Increased inclination of the sacral plane
3. Musculofascitis of the lumbar area
4. Localized periostitis at the attachment of the gluteal muscles on the ilium
5. Focal spots of extreme tenderness produced by local congestion over the sacral area
6. Sacroiliac lesions of the flexion or extension type
7. Contraction of rotary muscles
8. Contraction of the fascia lata
9. Rotational lesions of the tibia on the femur, producing pressure symptoms on the fibular branch of the sciatic nerve.
10. Various malpositions in the foot and the bones thereof
11. Postural strain
12. Herniation of the nucleus pulposus
13. Focal infection
14. Malposition of uterus
15. Disease of the pelvis and lumbar spine—arthritis
16. Neoplastic metastases

SYMPTOMS

The most usual symptoms are pain, varying in intensity and location, and inability to move the leg or lower back in certain directions. Pain, which may be mild, and usually is in the beginning, originates in the lumbar area and extends to the gluteal area, then along the distribution of the sciatic nerve on the posterior thigh, thence to the lateral aspect of the leg, and to the outside of the foot. Pain may be localized finally in one of these areas or may involve the whole leg.

I like to divide the cases into four different types according to the distribution of pain.

1. Pain as manifested principally in the lower back, extending into the gluteal area—grade I (18 cases in this series)
2. Pain extending into the thigh—grade II (24 cases in this series)
3. Pain and disability in the leg—grade III (104 cases in this series)
4. The most severe type, pain along the whole course and distribution of the sciatic nerve and intractable in character—grade IV (54 cases in this series)

ANATOMY AND PATHOLOGICAL PHYSIOLOGY

There are a few points in anatomy which everyone should consider in evaluation of the sciatic syndrome, namely:

1. The intervertebral foramina gets smaller from the first lumbar vertebra down to the sacrum and the branches of the sciatic nerve get larger.

2. The intervertebral foramina change in size and shape as the lumbar vertebrae move. Extension lessens —flexion increases.

3. Congenital anomalies of the articular facets of the lumbar area are very common. Any deviation of posture in general or of clinical relations of the zygapophyses automatically has an effect upon the muscles of the lumbar area, which in turn cause fixation, and, if this remains, produces a relative fixation

*Presented before the General Sessions, Fifty-Second Annual Meeting of the American Osteopathic Association, Boston, July 23, 1948.

of this area, particularly damaging in the extended position. When this occurs there are constant subluxations of the zygapophyses, with a consequent narrowing of the intervertebral foramina.

4. Abnormal relationship in the position of the sacrum in erect posture (the presence of a short lower extremity or the tilt of the sacrum forward) changes the relationship of the zygapophyses with the foramina.

5. Whenever a joint becomes fixed, no matter how limited, there is induration and thickening of the ligaments and contractures of muscle about that joint. In the lumbar area, this pathological condition produces edema at the head of the sciatic nerve or radiculitis, which eventually may lead to a sciatic syndrome.

6. It is also to be observed that as individuals get older, degeneration of the intervertebral disks takes place, with a consequent narrowing of the intervertebral foramina and subluxations of the zygpophyses. Whether or not this degeneration is apparent for a number of years, it is still a source of instability which can not be ignored in consideration of the anatomical facts relating to this problem of the sciatic syndrome. The average age of patients in this series was 48.

7. Either through posture or vocational strain, fascial support of the lumbar area becomes stretched. The same can be said of the fascia of the leg and the knee or ankle joints. This makes for instability.

MUSCULATURE

There are certain muscular factors which must be taken into consideration in the production of sciatica. Weakened quadriceps will, of necessity, cause an unstable knee and one can not have a properly balanced pelvis. In such an unstable mechanism many things can happen so far as the sciatic nerve is concerned. With weakened gluteal muscles there is also production of instability of the pelvis. Therefore it is necessary to observe the musculature and to determine how much relationship there is between the weakened muscles and the instability of the pelvis, spine, knee, and ankle. Unless this mechanical-physiological-pathological factor is considered, the sciatic pain will not be relieved, no matter whether the treatment is surgical or conservative.

HERNIATION OF DISK

In discussing this condition it is not necessary to go over the various causes which we have found, but only to mention one which is widely discussed at the present time—herniation of the nucleus pulposus through the annulus fibrosus. A practical question—and one which we have to confront every day—is when shall operative procedure be recommended for herniation of a disk? If operative procedure is recommended, the question is whether or not alleviation of the symptoms can be expected. From clinical observation I have come to some very definite conclusions on this particular problem and I shall present them for consideration.

From a purely clinical standpoint, it has been my observation that if good clinical results are to be expected from resection of a portion of the disk or all of the disk, the patient should present certain symptoms. It should be emphasized that the individual must have had *all* of these symptoms—not just one or two—if lasting results are to be expected from operative procedure. The symptoms are:

1. Persistent sciatic pain, unrelieved except by nerve blocking with novocain

2. Increased pain at night (The spinal column gets longer at night and fixation of the branch of the sacral plexus increases pain.)

3. Increased pain from coughing, sneezing, or jugular pressure

4. Increased pain from extension of the spine, either in the erect or prone positions

5. Diminished or absent patellar or Achilles reflexes

6. Anesthesia or paresthesia, usually in the lateral aspect of the thigh or leg (It may be over the quadriceps area.)

7. A defect demonstrable by lipiodol, pantopaque, or air myelography and corresponding with the level of distribution of pain.

There must be a period of conservative treatment to eliminate factors such as zygapophysitis. After verification of the presence of all of the enumerated symptoms and the failure of conservative therapy, surgical removal of the herniated disk can be reasonably expected to produce excellent results. If only one or two of the enumerated symptoms are present, the results of operative procedure will be disappointing because muscular and mechanical factors are more responsible for the sciatic pain than the local pathology of the herniation.

TREATMENT

It is obvious from our records that there are only two successful methods of treatment for sciatica, looking at it from a broad standpoint. They are:

1. Mechanical
   a. Osteopathic manipulative therapy
   b. Fixation in flexion
2. Surgical
   a. Removal of herniated disk
   b. Fusion

Osteopathic Manipulative Therapy.—After elimination of the minor contributing causes of sciatica, such as infection and others previously mentioned, we must come back to the fact that the mechanical factors involved in the lumbar area are the most significant in the problem and treatment of sciatic neuritis. I do not believe that focal infections, congestion of prostate, malposition of the uterus, contraction of the fascia lata, or localized myositis pathologies alone can produce sciatica. Such disorders are merely overloads which make any diseased condition worse. The fundamental pathology is either a deviation from the normal position or a congenital anomaly of the zygapophysis, resulting in a diminished intervertebral foramen, which produces hyperemia, edema, or venous congestion at the several origins of the sciatic nerve. A herniated disk merely adds to the mechanical problem. The most successful method of treatment, with these facts in mind, is osteopathic manipulation properly given. In this series 140 patients were completely relieved. This is an excellent record. It is not unusual, but it is significant in the realm of therapeutics because this relief was brought about almost solely by osteopathic manipulative treatment, with only a few patients having any adjunctive measures. In other words, when the mechanical factors are properly evaluated, the sciatic problem is 90 per cent solved.

It is not enough to apply general osteopathic manipulative treatment in this particular disease, if it can be called such. It is absolutely essential that specific manipulative treatment be given. The principle

is to apply force so that flexion is produced in the lumbar spine. This applies to the specific osteopathic technic or any exercise given. This has been fully discussed in a previous paper.[1]

If it seems advisable, as it was in twelve cases in this series, to apply a cast, the cast should be one in which the lumbar area is put in flexion. "Anti-gravity" is the term applied to this type of cast.

In a small number of cases, removal of a ruptured disk is the method of choice for treatment. Eight per cent of the patients in this group had surgery. In other series this percentage has varied between 5 and 10 per cent. In properly screened cases surgery is the solution. If cases are not carefully screened the results of surgery will be very disappointing. Even after careful, reasonable, and proper evaluation, a few of these patients will have residual symptoms, such as numbness, weakness, instability, and at times, recurrence of the sciatic pain.

The surgical removal of a herniated disk does not exclude the necessity of giving consideration to all the mechanical factors previously mentioned. Neglect of these factors in therapeutics means disaster when viewed from a number of years' standpoint.

When enucleation of the herniated portion of the disk, or as much as possible thereof, is accomplished, it is evident from reported cases that uniformly good results can be obtained only when the lumbar spine is fused. This procedure eliminates one of the important pathological entities, namely, the irritation of the articular facets. If fusion is accomplished with the patient in flexion, results are more uniformly good.

SUMMARY

1. A report based on 200 cases of sciatic pain of varying degrees was given.

2. One hundred and forty cases were completely relieved by osteopathic manipulation.

3. Thirty-six were relieved, but not permanently. Repeated or supplementary treatment was necessary to obtain satisfactory results. A number of these patients unquestionably had frayed disks or minor herniations.

4. Sixteen patients required surgery for removal of herniated disk.

ANALYSIS OF 200 CASES OF SCIATICA

I. Average Age—48 years
   A. Youngest—19 years
   B. Oldest—80 years

II. Immediate Complaint
   A. Pain from acute injury (lifting, stooping, coughing, etc.)—133
   B. Pain of a chronic nature—67

III. Grades According to Distribution of Pain (see text)
   A. No. I—18
   B. No. II—24
   C. No. III—104
   D. No. IV—54

IV. Types of Spines from a Postural Viewpoint
   A. Normal—64
   B. Lordotic—86
   C. Straight—39
   D. Scoliotic—11
   E. Kyphotic—5

V. Factors, Other Than Mechanical, Considered as Contributory
   A. Intestinal—15
   B. Arthritis, hypertrophic and traumatic—40
   C. Teeth infection—17
   D. Rectal pathology—3
   E. Sinus infection—3
   F. Urinary disorders
      1. Prolapse—1)
      2. Pyelitis—2) 6
      3. Cystitis—3)
   G. Prostatic involvement—2
   H. Cervical infection—3
   I. Malignancy by metastasis—1

VI. Miscellaneous Factors and Treatment
   A. Short lower extremity—65
   B. Of 36—12 Antigravity cast, relief in 8
   C. Of 36—9 Hospitalized for traction and flexion treatment
   D. Of 36—Novocain injection in localized areas—10. Relief moderate
   E. Reduction of excessive weight—2
   F. Lumbar fracture—1
   G. Feet as contributing cause—36
   H. Low-back braces—9
   I. Legs affected
      Right—89
      Left—102
   J. Average duration of sciatica before treatment—25 weeks
      Longest—15 years
      Shortest—1 day
   K. Average number of osteopathic manipulative treatments—11
   L. X-rays of spine, including short leg—130
      Congenital anomalies—53
   M. Other pathologies of bone and pelvis
      1. Metastasis from prostate—2
      2. Hemangioma—1
      3. Osteoarthritis—40
      4. Acute rupture of disk—1
      5. Surgical removal of ruptured disk—16

VII. Results of Manipulative Treatment
   A. Complete relief—140
   B. Repeated treatment necessary for relief. Treatment given at intervals varying from a few weeks to several months—36
   C. Failures by conservative treatment—24
   D. No final record—8

VIII. Results Following Surgery of a Ruptured Disk or Other Spinal Conditions
   A. Relieved—12
   B. Returned for treatment—4

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REFERENCE

1. Starks, C. R.: The nonsurgical treatment of sciatica. J. Am. Osteop. A. 45:239-241, Feb. 1946.

REACTIONS TO MORPHINE

It is becoming evident that clinical studies of a drug, new or old, must not be confined to resting subjects or patients. A previous study of the action of morphine in patients tilted upright revealed an important action upon the circulation that had not been noted in supine subjects. The present study reveals the frequent occurrence of symptoms in the ambulatory state that rarely occur in bed patients.

These results suggest that morphine should not be given without warning to ambulatory patients or to patients who may become ambulatory shortly after the injection. They also indicate that when morphine must be given to patients in whom vomiting might be highly undesirable or even disastrous, emesis may be prevented by (a) insistence upon the supine position, (b) administration of the smallest and least frequent dosage possible, and (c) restriction of food intake.—Julius H. Comroe, Jr., M.D., and Robert D. Dripps, M.D., *Surgery, Gynecology and Obstetrics*, August, 1948.

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Functional Foot Disorders

JOHN MARTIN HISS, B.S., M.A., D.O., M.D., Sc.D.
Los Angeles

Comfort varies directly with foot function. That is the firm belief of the writer. This seems simple enough as a primary statement, and easy to comprehend. In relation to the activity of human feet in their everyday functioning, the law presents an important basis of consideration and aids in systematizing examination, clarifying diagnosis, explaining clinical pathology, and dictating treatment.

The human foot possesses a range of functional activity far beyond ordinary needs, though considerably limited when it is compared with the feet of grasping primates from which it has developed.

The author's work, based on a study of foot function, presents reasonable clinical proof that a foot may be greatly changed in physical structure, be considerably inflamed, and have hypertrophic changes and still be comfortable. This comfort depends upon sufficient foot function to support the activity necessary each day. This comfort depends upon the range of activity that nature has provided in feet, far beyond necessary requirements. Therefore, deformity and pathological changes may be present to a considerable extent before necessary function is encroached upon.

For further illustration of how function can be maintained with perfect comfort even in the presence of abnormal structure, one needs only to study carefully a series of cases of hallux valgus. In the writer's experience with thousands of cases, at least 50 per cent were comfortable. Comfort in the presence of deranged structure, always present in hallux valgus, is dependent entirely upon the mobility of the joint and the weight it has to bear.

As hallux valgus is primarily never an enlarged joint, but always a mesial buckling of the first metatarsophalangeal joint, we come to a consideration of purely functional disturbance. Generally speaking, hallux valgus comes on gradually, so the foot has a chance to adapt to change, and in about half of the cases the patients will maintain sufficient function to prevent joint tension, muscle strain, or undue buckling that might cause pressure on the shoe. In hallux limitus, there is an overgrowth of bone on the dorsal rim of the joint, but there is no pain until that overgrowth interferes with joint function to the extent that there is a locking of this joint at the completion of the step.

Two notable examples which prove the point that comfort varies directly with function are feet with minimum motion and those with maximum motion. The foot with minimum motion may appear absolutely normal—in perfect alignment, high-arched and even with strong muscular development—yet a slight displacement of one bone that can cause locked joint motion at a particular spot may upset the entire coordination of the mechanism. On the other hand, a foot with maximum motion might develop 15 or 20 degrees of eversion before there will be a locking of the joint, for in this case all slack must be pulled up before the element of joint tension enters and causes pain. The minimum motion type of foot may be perfect in appearance, yet extremely painful; the maximum variety may be considerably deformed from severe eversion and still be painless.

Another element that must be considered is the functional adaptability of muscles to structural change. For instance, a foot may be 15 degrees in eversion, throwing undue strain on the flexor group of muscles, while their antagonistic muscles, the extensors, may have only half of their normal amount of work to do. If this condition comes on gradually and the foot can adapt itself to the change, there will be hypertrophy of the flexor group and this hypertrophy may be sufficient to maintain normal functional balance and thereby prevent joint tension or muscle strain. This functional adaptability of the muscles maintains normal balanced function and the feet are comfortable. But should there be a break in the coordination of the antagonistic muscles, functional disorder will result and pain will develop.

In our Clinic* we make a routine functional examination of all feet, and have come to assume an attitude somewhat as follows: No matter how extensive the pathological background or how hopeless the picture may appear, we accept the status quo of the feet and make every effort to improve function. The results are often surprising. For instance, a patient suffering from arthritis elsewhere in the body will nearly always have his foot trouble included in the general picture of arthritis before entering our Clinic. Many times, the foot pains are due to mechanical dysfunction and not to the arthritis at all. Many hemiplegic patients will develop functional foot disorders, and the discomfort is attributed to the brain lesion. Persons with locomotor ataxia may also have some functional foot disorder that accounts for pains in the lower extremities rather than the tabes dorsalis.

It is our practice to call attention constantly to the law: Comfort varies directly with function. Repeated instances of the working of this law have been pointed out over a period of 25 years. This is an appeal for consideration of those discomforts that have their origin in causes not demonstrable by x-ray. As a profession, we think we can recognize a normal foot, and we feel that we can interpret gross pathology as seen clinically and proved by x-ray, but between these two extremes lies a broad field of disorders, not commonly recognized, which is the cause of pains now suffered by some 80,000,000 people in this country. The writer contends that a careful consideration of function will reveal the cause of foot pains, no matter how misleading the pathology may appear at times.

In a comprehensive study of foot function, however, one must go beyond the anatomical limits of the foot. In fact, it is well to consider the foot as beginning at the knee, since calf muscles are actually long foot muscles. A functional study must include the entire lower extremity plus the pelvic girdle. A study must be made of the lumbar region downward, considering the feet as the contact points for a mechanism of locomotion, highly complex in its balanced function. Comfort depends upon maintaining the function of this mechanism.

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*Dr. Hiss Clinic, Los Angeles.

WEIGHT DISTRIBUTION

An important function that requires careful study is weight distribution. Weight distribution refers to the control of contact pressure, made by the sole of the foot on the ground, caused by gravity as the load moves through the foot during locomotion.

In order to understand the distribution of body weight through the foot, we must first see that we are dealing with a supporting structure similar to a bridge. The bones function as the compression members, and the ligaments as the tension members, while the all-important plantar aponeurosis (also a tension member) acts as a tie-rod to prevent the spreading of the abutments. When body weight (which is of course caused by the force of gravity) is placed on this structure, we immediately have a play of non-parallel forces that would be difficult to determine by parallelograms since the numerous angles of force could not be determined. As anatomical structure fails to follow the straight lines and elementary forms of simple machines, the lines of forces in action are pointed in all directions.

Nevertheless, we are dealing with a structure that is calculated to support a load in motion, just like a bridge. But here the similarity ceases, for our foot "bridge" is an articulated structure moved by the force of muscles. At the same time that it is "juggling" the body weight above, it is making an orderly attempt to distribute this load as locomotion takes place.

To the writer, the foot is the most amazing piece of mechanical perfection in existence. When we consider the intricate workings of the foot, with its high degree of delicate coordination, it is no wonder that it gets out of adjustment, especially in view of the abuse and neglect it receives. This delicate function cannot be demonstrated by x-ray; neither can dysfunction. Thus a lot of misinformation about "fallen arches" and so forth has been assumed, while the possibility of a fine machine's getting out of adjustment through constant usage has been overlooked.

It appears that the finishing touch to the proper functioning of the foot is weight distribution. The heel touches the ground with delicate precision as the anterior muscles relax to prevent a jolt. The beveled or rounded lateral side of the calcaneus immediately rolls the supporting element to the lateral side, which starts the moving load across the "bridge" that is the lateral weight-bearing arch. As the heel makes contact with the ground, the body weight is transmitted through the medium of the astragalus, which is squarely on center above, to the articular facets on the calcaneus. The large posterior facet and the smaller middle facet (on a higher plane and situated mesially to the posterior facet) have planes the surfaces of which are inclined in a direction toward the cuboid bone, which has the effect of immediately thrusting the weight to the lateral side of the foot. Therefore, most of the weight is taken up at once by what the writer calls the "initial contact arch" made up of the calcaneus, cuboid, and base of the fifth metatarsal, which composes the posterior half of the outer weight-bearing arch.

As soon as the heel contact is made, the tibialis anticus, the tibialis posticus, and the long flexor muscles immediately guide the weight to the outer side of the foot. Starting at the tuberosity of the calcaneus, most of the weight moves along the long axis of the calcaneus to the cuboid bone, and thence along the fifth and fourth metatarsals (principally the former) to the ball of the foot. Another and smaller portion of the weight travels from the astragalus to the scaphoid and cuneiforms which rest upon the cuboid bone. Hence a large portion of this weight on the inner spring arch is transmitted to the outer weight-bearing arch and joins the "current" of weight traveling by way of the long axis of the calcaneus. A portion of the weight travels directly from the astragalus, through the scaphoid, cuneiforms, and on to the mesial three metatarsals, to the ball of the foot.

As the various currents of the moving load reach the ball of the foot, there takes place the important function of distributing the weight across the ball of the foot. As stated above, the writer is convinced that by far the greater portion of the load travels along the outer side of the foot, through the outer weight-bearing arch onto the heads of the fifth and fourth metatarsals, which act as levers for the contraction of the peroneal muscles at this point, for the purpose of thrusting the weight mesially onto the third, second, and first metatarsal heads.

The brim rolling motion, started with the initial heel contact, is continued in the distribution of the weight along the lateral side of the foot, across the ball until the moving load finally comes to the mesial and forward or distal part of the foot. Thus weight is distributed across the ball of the foot with each metatarsal head bearing its own share of the body weight.

METATARSAL TROUBLE

Any interference with weight distribution will be accompanied by some very severe symptoms. The "lock joint" foot (Type 2 in our classification)[1] is a good example.

This type of foot is easily recognized because the foot is in perfect alignment with a reading of zero on the "Classifootometer"[2] or shows, at the most, only 2 or 3 degrees of eversion. This may possibly be caused by an unusual but normal bony prominence of the scaphoid. The main differential point (from normal) is the presence of painful symptoms and limitation of motion. The "Functional Foot Test"[2] usually reveals limited action in the joints and a discrepancy in the metatarsal segment ratio.

Even though this type of foot is in good alignment and from all external appearances is normal, it may cause severe suffering. An x-ray examination will reveal nothing. Sometimes there is swelling in the ankles and feet, and because of the lack of external symptoms and normal x-ray findings, these cases are misdiagnosed as arthritis. Primarily, they are not arthritis.

The main cause of pain is an error in distribution and adaptability, with some inhibition of locomotion and balance. These cases are characterized by a limitation of motion in any or all of the joints of the feet, and the principal cause is displacement of bones. In nearly all such instances, there is found locking of the joints of the transverse tarsal arch, with rotation of the cuboid and slight subluxation of the first cuneiform. Primarily, the normal feet found in these cases were of the minimum motion variety, frequently with a high arch. The patient with this type of disorder, is strong physically, and has well-developed muscles and strong joint ligaments. Because of this great strength and normal minimum motion, the slightest displacement of bones will cause the maxi-

mum of discomfort from joint locking. This produces tension and therefore limits foot function. If there is extreme tenderness, inflammation around the joints will follow, and the condition becomes complicated by joint infiltration, followed by further limitation of motion.

This severe joint tension, which results in periarticular inflammation, of course causes great pain upon walking, so a secondary contraction of muscles will follow. Nature's attempt to immobilize an inflamed joint causes the muscles to tire, ache and cramp. Locomotion is interfered with because the muscles must work against the resistance of stiffened and "dragging" joints. The "bearings" are too tight in this fine machine —it is just like running your car with the brakes on, for it takes more power to move. If general foot function is not free, the patient will often walk with a stilted step and of course get secondary strain in the calf muscles. In about 30 per cent of such cases, strain will be felt in the knee joints and thigh and back muscles.

Another result of limited function is failure of proper distribution of the moving load across the ball of the foot, causing a pounding of the head of one or two metatarsals (generally the second and often the third also). This furnishes the true picture of metatarsal trouble and we may as well discuss the common symptoms at this time.

Metatarsal trouble—pain under the ball of the foot—is never the result of dropped metatarsals. As has been shown in a functional study of the foot and structural relationship, each metatarsal bears its share of the body weight and the normal function of the entire foot is to distribute the weight in an orderly manner across the ball of the foot. Metatarsal trouble, therefore, is practically always a secondary result of impaired function in the transverse tarsal arch. Thus, any limitation of foot motion, no matter with what type of foot trouble we are dealing, may and often does result in failure of distribution of weight across the ball of the foot with the usual painful results. So when metatarsal trouble occurs, it will be found that there is interference with the fundamental law of weight distribution. It not only appears as a secondary result of limited function in the lock joint type, but may result from interference in foot function in the rigid type, in the everted type, and in any other condition in which the distribution of weight during the third stage of walking is disturbed.

As a result of pain under the ball of the foot, the toes contract and become limited in flexion. They often become fixed in a position of extreme extension and from this point on, it is only one step to structural changes which produce hammer toes. The failure of toe action further aggravates metatarsal trouble because the forward thrust of locomotion, in the third stage of walking, is then borne entirely by the ball of the foot, since there is no support given by the toes' flexing against ground resistance as in the normal. This impaired toe flexion, as a result of pain under the ball of the foot, is a spinal cord reflex—the same thing as we used to experience as boys when barefooted we stepped on a hot sidewalk—the toes draw up to get off the hot spot in a hurry.

In summarizing metatarsal trouble, there is as a primary cause, the failure of weight distribution across the ball of the foot—not a "dropped metatarsal" or a "broken metatarsal arch," for no such "arch" exists. It is the secondary result of loss of foot function and the disturbance of the orderly distribution of body weight through the foot. The primary cause is usually found in the transverse tarsal arch. Failure of toe flexion comes on after the metatarsal pain has started, and further aggravates the condition by focusing the entire weight on a small area of the ball of the foot in the forward and final thrust of locomotion.

Limitation of foot function violates the important fundamental of adaptability. The coordination of support, locomotion, and balance under changed positions is limited. There is apt to be some imbalance under different circumstances such as altered inclination of the body, shifted position or direction of body weight, and deviation of the course in walking. Compensation for walking on different slopes is likely to be limited in direct ratio to limitation of foot motion.

One of the chief difficulties with the lock joint type of foot is getting comfortable shoes. Shoe trouble is often the first symptom of foot trouble. This means that the lock joint type, being greatly limited in motion, even though it is in good alignment, cannot adapt itself to various types of shoes. The difficulty lies in limited function and poor accommodation rather than in the shoes.

FOOT STRAIN

Everted and pronated feet require a special study since they are the chief causes of foot strain.

Structural eversion may be defined as that type of outward turning of the foot which is due to deformity or displacement of bones. Attention is called to the fact that this malalignment is in the foot itself and has nothing to do with a lateral rotation of the entire lower extremity. This point is so commonly overlooked that it should be especially stressed here. It may be perfectly normal for the toes to point outward, as long as the foot itself is in perfect balance and the outward turning due to a rotation of the lower limb as a whole. Morton[4] says: " . . . the angle of out-toeing should be about 30 to 40 degrees in order that the width of the area of foot contact be equal to its length. This angle is diminished during locomotion." Eversion is then an outward curving of the foot upon itself, a condition in which the mesial side is not in alignment.

From a pathological standpoint, this outward turning of the foot has been so gradual (over a period of 25 years in some cases) that the individual may walk with perfect comfort. There have been changes in the shape of the bones which conform to the laws of deformity; continued compression on a bone will change its shape (Wolff's law). This structural change has progressed so slowly that nature has had a chance to accommodate as to function, and it is quite possible for one to have from 5 to 20 degrees of eversion without pain.

After bone deformity has increased to a certain extent, most people will develop unbalanced foot action and displacement of bones. Then the elements of joint tension, muscle strain, and limited motion will enter. The instant this progressive pathology begins to interfere with necessary foot function, pain begins. There will be no pain until function is disrupted even though the foot from external appearance, from a footprint, or even from an x-ray, appears deformed. *Comfort varies directly with function.* Not until progressive deformity or injury has drawn the foot off balance, beyond the range of nature's ability to accommodate to the change, will there be bony displacements, tension, strain, and limited motion. Thus it is not sur-

prising to see feet that are comfortable while not in perfect alignment. Conversely, as in the "lock joint" type, feet which are in alignment may be extremely painful.

A classification of feet and the study of the onset of functional disturbances clear up many of the mysteries of the past. Heretofore, there has never been an explanation of this paradox of a foot in perfect alignment being painful, and a foot in eversion being painless.

In the average case of structural eversion, as the foot gets off center from 5 to 10 degrees, the center of weight bearing shifts mesially onto the spring arch instead of the weight being focused over the cuboid bone. The writer is confident that this progressive eversion is the first step in producing bone compression and bone deformity. Then as this bone deformity increases, there will be a spreading of the transverse tarsal arch, with a slight plantar displacement of the first cuneiform and a mesial and downward rotation of the cuboid bone.

While in most cases the primary bone displacement is in the first cuneiform and cuboid bones, occasionally there may be a plantar displacement of the second and third cuneiforms. This further increases eversion and has a tendency to allow body weight to thrust the scaphoid mesially so that the tuberosity of this bone becomes more prominent. As the center of weight bearing moves mesially, joint tension and strain on the plantar muscles enter the picture, and the feet begin to tire and ache. The displaced bones become locked upon bearing weight in their abnormal positions, even though the foot may be flexible on passive motion. This locking takes up the slack in the tarsal joints, throwing great stress on the ligaments and causing joint tension—the beginning of foot trouble.

As a patient stands before you with everted feet, you should calculate the center of gravity and in a general way, note that the foot has moved lateralward under the load. This places the center of weight bearing more mesially onto the inner spring arch. As weight moves mesially, progressively more weight is thrown on the mesial group of plantar muscles, the abductor hallucis hypertrophies from overwork and becomes more of an arch muscle than an abductor for the great toe. The flexor brevis hallucis, the flexor brevis digitorum (chiefly the mesial portion), and the quadratus plantae become overworked and, being on a strain, will tire, ache, and cramp.

As the weight shifts mesially, the long foot muscles in the calf of the leg become involved. The tibialis anticus and the tibialis posticus, being the chief balancing muscles, must now assume the added duty of preventing complete mesial rotation of the arch, as well as being hard put to maintain balance on a base whose triangle of balance has become distorted.

On the dorsum of the foot, the extensor brevis digitorum contracts in its antagonistic action against the already overworked and contracted plantar muscles. This pulls the proximal segments of the toes upward. The extensor longus digitorum, not being involved in lateral foot balance, seems to maintain its normal integrity but does not resist its antagonist, the flexor longus digitorum. This is the explanation of contracted toes that so frequently follow foot strain and loss of function. The failure of the toes to flex against the ground in the third stage of walking, adds further weight to a limited area under the ball and thereby increases metatarsal trouble. Again let it be emphasized that metatarsal trouble is not the result of a broken "metatarsal arch" or of a dropped metatarsal head.

Now the element of strain should be considered. The plantar muscles and deep calf muscles, which are particularly engaged in balancing the body during stance, and the triceps surae, which are engaged in locomotion during walking, must do twice their normal work with the shifting of the load toward the mesial side of the foot. These muscles tire, ache, and cramp, so in most cases, nature tries to compensate and causes hypertrophy of the muscles. At this point, it is well to call attention to the fact that these muscles have not become weakened and "allowed the arch to fall," for the arch never falls—it is simply on a strain. The muscles will strengthen beyond normal average because they are doing double duty and are overexercised. This is a very definite reason for the failure of exercises to cure this type of foot trouble. They are already overexercised—that is why they tire, ache, and cramp.

HEEL SPURS

Pain beneath the heel bone is a very common clinical entity. At one time, the sum total of our knowledge was that heel pains were caused by spurs. If x-rays of the feet showed spurs, operative removal was the next step, and it was often followed by inability of the patient to walk much the rest of his life.

The most common cause of painful heels is foot strain, usually in everted feet. The plantar aponeurosis and the plantar muscles attach to the heel bone, and because they are on such a terrific strain due to eversion, they are almost literally "pulled out by the roots." This strain may occur in "lock joint" (Type 2) feet, but is most common in everted feet. In any event, there is such a strong pull at the muscle attachments that an inflammatory process—periostitis—is set up, and the patient calls it "stone bruise." The immediate cause of the pain is the periostitis and the amazing thing is that the great majority who have heel pains, have no heel spurs. Because all painful heels are not x-rayed in our Clinic, it is hard to estimate what percentage have spurs and what percentage have not. A rough estimate is that about 10 per cent actually have a bony outgrowth, and practically all of these extend forward along the line of pull of the plantar aponeurosis. It is equally surprising how many heel spurs we see in patients (x-rayed for other reasons) who never had a pain in the heels.

The actual formation of the spur evidently follows a definite chain of events, which are purely mechanical in origin, although an inflammatory reaction may be a secondary issue. Whether there is abnormal foot strain, or normal hard usage, there is great stress on the aponeurosis at its attachment to the os calcis. Of course the normal reaction of nature, everywhere in the body, is to attempt to splint a point of great stress; therefore, there is a throwing out of fibrous connective tissue as the result of irritation or inflammation. Since this fibrous connective tissue arises from bone structure, it later on differentiates into bone, and the ossification that takes place in the tissues forms the spur.

Mechanically this is the same process that takes place in the various tuberosities at which there are strong muscular attachments. It is well known to the anatomists that very muscular people have large tuberosities or, in other words, very firm attachments of their muscles to their skeletal tissues. Following the same principle, when there is strain on the plantar

aponeurosis and plantar muscles, nature attempts to strengthen their attachments with new bone formation. While this formation only occurs in about 10 per cent, there may be pain at the attachment of the muscles, and sometimes even acute inflammatory reactions, accompanied by cellulitis of the surrounding fascia. This condition is often misdiagnosed as arthritis when it occurs at the forward ends, while it is really periarticular inflammation, purely mechanical in origin.

Lewin[5] explains spur formation on the basis that the plantar fascia pulls on its attachments with so much stress that it pulls off a small portion of the periosteum. As a result of this trauma, a proliferation of the osteogenetic layer occurs and forms new bone.

Hauser[6] says: "The treatment, at least primarily, is not operative removal," many surgeons advise against surgical removal of a forward projecting heel spur. The chief danger, besides removing too much bone, is that operative trauma stimulates osteogenesis and the formation of new spurs that might, in that case, project downward and actually be the cause of pain.

The movement of the weight-bearing forces mesially on the spring arch, causes severe strain on the plantar muscles and plantar fascia and heel spurs are usually the result of this strain and may occur in any type of foot. Manipulative treatments for the correction of the eversion, as far as possible, and relieving the tension on the plantar structure will end the distress. As soon as the pain ceases, no one will care whether or not there is a spur present. The spur is nature's healing process and any attempt to remove it by surgical procedure is folly.

It is quite possible that infection plays some part in those rare instances of spurs on the os calcis that extend downward. Gonorrhea is mentioned as a causative factor, but examples of such spurs are not common in the literature. Bennett[7] and others have actually cultured the gonococcus from these bony lesions. Barker[8] describes bilateral exostoses on the inferior surface of the calcanei, which were gonorrheal in origin. These specific spurs seem to form on the plantar surface. It is apparent that painful heels from gonorrhea are extremely rare, compared to the aggregate number of painful heels from other causes seen in our Clinic.

It is conceivable that certain rare types of injury, such as falling off a ladder and landing on the feet, can cause so much trauma that the result will be exostoses on the bottom of the heels. This type of injury will often fracture the heel bone, and when the callus forms, there may be a roughened area on the plantar surface of the heel bone. These spurs may need surgery if they become painful.

Shilnikoff[9] claims that calcaneal spus is the result of a neurotrophic disturbance of certain branches of the sciatic nerve, producing calcification of the os calcis. The pain, he states, is an expression of neuritis and is not caused by the spur, the neuritis being in the cutaneus surae medialis and the sural nerves. He reports eight cases of neurotomy of one of these branches, with 100 per cent improvement. The writer does not doubt the presence of neuritis as a cause of heel pain for this has been demonstrated many times by osteopathic physicians, but he questions the necessity of neurotomy when more conservative treatment has been used with excellent results.

To summarize: Heel spur is nature's attempt to splint a weak spot at the attachment of the plantar aponeurosis to the heel bone. This spot has become weakened by excessive strain on these plantar structures as a result of eversion, injury or very hard work, which interferes with function. Treatment consists of correction of that part of the eversion, due to bony displacement, that caused strain on the plantar aponeurosis and muscles. When this excessive pull at the attachments to the heel is lessened, the periostitis will gradually disappear and the pain will cease. The spur which has been built up, and which was not the cause of the pain, will still remain.

The writer operated on several cases of anteriorly projecting spurs many years ago, and he has seen the poor results that other surgeons had also. Unhappily, a frequent result of surgery is the formation of more spurs, together with a more violent periostitis which may be the cause of increased pain. The spurs caused by surgery may not be so accommodating as to follow the line of the plantar fascia forward, but may point downward and have the same effect as walking on a tack, except that the tack would be inside, pointing downward.

The occasional good results from removal of spurs can be explained on the basis that luck was with the patient, and in the healing process enough connective tissue was grown out to splint the area and make it strong enough to withstand the abnormal strain without further inflammation. Good results are possible, with expert technic that causes the minimum of trauma to the periosteum, but a surgeon who is inclined to operate on heel spurs should never make the incision on the sole of the foot. The mesial approach should always be chosen so as to avoid a scar or possible keloid at a weight-bearing point. A keloid can be more painful than the original condition.

Specific and selective bone-setting to restore function and thereby relieve foot strain is by far the most effective method in our Clinic for relieving painful heels.

KNEE PAIN

The relationship between functional foot disorders and painful symptoms experienced by many people from the waist down has never been explained adequately. In the writer's Clinic, a study has been made of more than 300,000 lower extremities in relation to foot function, over a period of 25 years. One outstanding conclusion that has been reached is that arthritis is relatively rare compared to the number of symptoms resulting from mechanical difficulties in standing and walking. I doubt if true arthritis can account for 10 per cent of the pains suffered in the lower extremities, while fully 60 per cent of our cases had been so diagnosed before entering our Clinic.

The everted foot naturally forces the center of weight-bearing mesial to the center line in the lower extremity. This immediately causes unequal strain on the ankle joint and the knee joint ligaments. It follows that there will be unequal pressure on the cartilaginous surfaces of the joint, producing literally a "joint dragging." As the mesial ligaments of both joints are subjected to more vertical stress and strain, the lateral ligaments will receive less. Therefore, owing to this unequal pull on the joint ligaments of the ankle and knee, it is not surprising to find these joints inflamed and very painful. As the mesial ligaments of the knee joint are in close relationship to the mesial semilunar cartilage, it is not uncommon to have this cartilage forced into a position of extreme tension, followed by the typical symptoms and pathology of a

"slipped" mesial semilunar cartilage. These cases are not nearly so severe as the typical knee injuries received in football, yet they are similar from a mechanical standpoint, the difference being that they are brought on gradually as the foot goes farther and farther into a position of eversion. This is a fundamental factor in the perversion of weight-bearing and requires careful study.

If the entire lower extremity is detached from a skeleton and held so the foot just touches the floor, it can be seen when looking down on it that the axes of the ankle, knee, and hip joints are not in the same plane. Strasser[10] and Steindler[11] have both stressed this point. I prefer to discuss these axes in relation to the base line of the foot, running along the mesial edge. You will note first that the knee joint axis is at a right angle (90 degrees) to the base line of the foot. The knee joint has its hinge-like action in a frontal plane, in respect to the rest of the body. The knee bends straight forward and by thus bending around an axis at a right angle to the direction of forward progress of the body, furnishes a basis for comparison with the hip, ankle, and metatarsophalangeal joints.

The axis of the ankle joint is inclined at an angle of 30 degrees, backward to the knee axis, so this joint bends in a direction, forward and lateralward. The astragalar articulation is at an angle of 60 degrees in respect to the base line of the foot. This joint is placed in such a position as to direct the moving load forward and lateralward during weight distribution in the first stage of walking.

The neck of the femur points forward and mesialward in order to articulate with the acetabulum to form a very movable joint. The axis of the neck is at an angle of 25 degrees in respect to the knee joint axis.

It should be noted carefully (1) that the ankle joint is so constructed as to resist any movement other than in a direction forward and lateralward; (2) that the knee joint is so constructed as to permit only a small amount of movement other than in a direction straight forward; and (3) that the hip joint, not being constructed to resist thrusts like the ankle and knee, will permit free rotation in all directions.

Since there is side resistance in the ankle and very little rotation in the knee joint, tension will be felt on the mesial aspect of these two joints. Since the hip joint has free rotation, there will be no tension at that point. However, in cases of severe eversion and during prolonged walking, the mesial rotator muscles of the hip may tire and ache.

So as the result of eversion, tension in the ankle is increased, weight-bearing is unequal, and this joint may become very painful. The same thing happens in the knee joint, only not so severely as a rule, because the variance of normal gravity with shifted gravity is not so great as in the ankle. Furthermore, the knee possesses a slight rotary function that the ankle does not have. This fact is borne out clinically, for ankle joint pains as a result of eversion occur much more frequently than knee joint pains. Hip pains, which are muscular and not joint pains, occur less frequently than pain in either knee or ankle.

The severity of ankle, knee, and hip symptoms depends upon the severity of the eversion in the foot and the tension in the tissues. This latter point depends on whether the patient's foot is of the minimum motion type which will develop tension with the slightest eversion or of a maximum motion variety (lax foot) which can develop a lot of eversion before the slack is pulled up in the joint, after which tension will set in. It is easy to determine the laxity or firmness of a patient's joint tissue by making a "Functional Foot Test."[3] If the foot is of the maximum motion variety, freely movable in all its joints, it can be assumed that lax, freely movable structure is an anatomical characteristic of all this patient's joints.

The foregoing study of the joints and the static effects of gravity shift, resulting from foot eversion, is very important and must be thoroughly understood. A lot of confusion exists in regard to the functions of this very important joint. The writer has made a clinical study of movements of the knee joint in over 30,000 patients complaining of knee symptoms in relation to foot eversion. These observations, augmented by anatomical study are as follows: First, there is a greater range of mobility in the lateral portion of the knee joint than in the mesial portion; second, there is greater stability and more tension in the mesial ligaments (during the complete excursion of the joint) than in the lateral ligaments; third, the joint is tighter during complete extension and complete flexion than at any point between; and fourth, the greatest degree of rotation of the tibia on the end of the femur is possible when the knee is flexed between 35 and 90 degrees. Each of these observations should be discussed individually, but time will not permit.

About 50 per cent of the cases that have secondary knee strain will get complete relief by correction of the feet alone. Examination often reveals that the mesial semilunar cartilage has slipped mesially. It should be replaced by a series of treatments given at the same sitting as when the bones in the feet are set.

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DISCUSSION

KARL P. B. MADSEN, D.O. Oakland, Calif.: This paper represents the results of more than 25 years of one man's experience with foot problems. I have read it several times and am impressed with the author's constant reference to a few basic laws or principles which, if broken, bring about the afflictions we choose to call functional foot disorders.

The interpretation by Dr Hiss of locomotion, faulty weight bearing, and gradual development of dysfunction appears sound to me.

I think there can be no disagreement on the point that in order to evaluate properly the cause of foot trouble, one must consider the patient as a complete organism, particularly with reference to body mechanics.

This concept is in accord with osteopathic principles as applied elsewhere in the human body.

460 Staten Ave.

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Intramedullary Pinning

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HISTORY

In 1913 Lambotte[1] of Belgium reported one of the first groups of cases of intramedullary pinning. This apparently aroused very little curiosity in other countries and probably the earliest reported cases in America were in 1937 when the Rush brothers[2] of Mississippi used a Steinmann pin extending through the skin as a temporary prosthesis. In 1940 Lambrinudi,[3] in England, presented the use of Kirschner wires in the intramedullary canal as a new discovery in the treatment of fractures. Probably the most extensive European sources of information are Küntscher[4] of Germany, who began publishing his reports in 1940; Böhler[5] of Vienna, who wrote in 1943 concerning 500 cases; and Soeur[6] of Belgium, who reported 55 cases in 1946.

Present-day work in this country is being done chiefly by Dr. Hugh Smith[7] of Campbell's Clinic and Dr. Dana Street[8] of the Veterans Administration Hospital, both of Memphis, Tennessee. The European literature has been affected by the pressure of false political optimism and, therefore, it has been difficult to evaluate the all-important end results of the work of Küntscher and Böhler. This fact has forced the men in this country to tackle the new procedure from the beginning and slowly advance information of the clinical and experimental progress as scientifically as possible. Since this is a relatively new procedure and gross problems are still arising in its clinical application, it is necessary for each man to take the utmost care in following the procedures most recently reported.

APPLICATION OF PINNING

This procedure is best suited to closed fractures of the middle third of long bones, fresh or nonunited, although in the nonunited it is used as an adjunct in support of customary bone grafts. The area of application is flexible, depending on the long bone involved. In the femur it may be used at the junction of the upper and middle thirds, the middle third, and the junction of middle and lower thirds; in the tibia at the middle third and the junction of the middle and lower thirds; in the humerus at the middle third; in the ulna and radius at any location on the shaft within approximately 1 or 2 inches of either end; in the clavicle at the middle third. Transverse fractures of the shaft usually respond best to the fixation by a pin. However, spiral fractures, with the aid of occasional wire lashes, respond practically as well. This method should not be used in compound fractures of any bone. The pins, in general, should not traverse a joint space nor should they extend externally through the skin.

Fig. 1.—Instruments used in intramedullary pinning: (1) driver, (2) Sofield femur nail, (3) and (4) ulnar and radial pins.

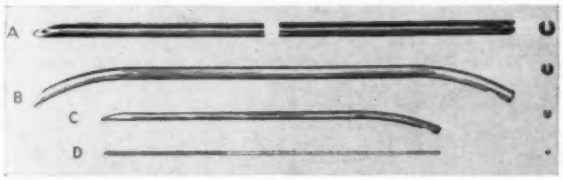


Fig. 2.—(A) Straight pin of grooved bar of steel (V-2a). One end is pointed, the other shows a small eye. In profile these pins are in the form of a U. For a femoral diaphysis, the diameter of the pin is usually 8 mm. The thickness of the sides of the U is 2 mm. For the humerus and the ulna the pins are similar, but shorter and thinner.

(B) Tibial pin, made of the same material as the straight pin, and 6 to 8 mm. in diameter. It is curved at both ends. The point of the curve is generally 1.5 cm. from the end.

(C) Radial pin, 5 mm. in diameter. It has a single curve.

(D) Threaded rod for the ulna and radius, 2 to 3 mm. in diameter.

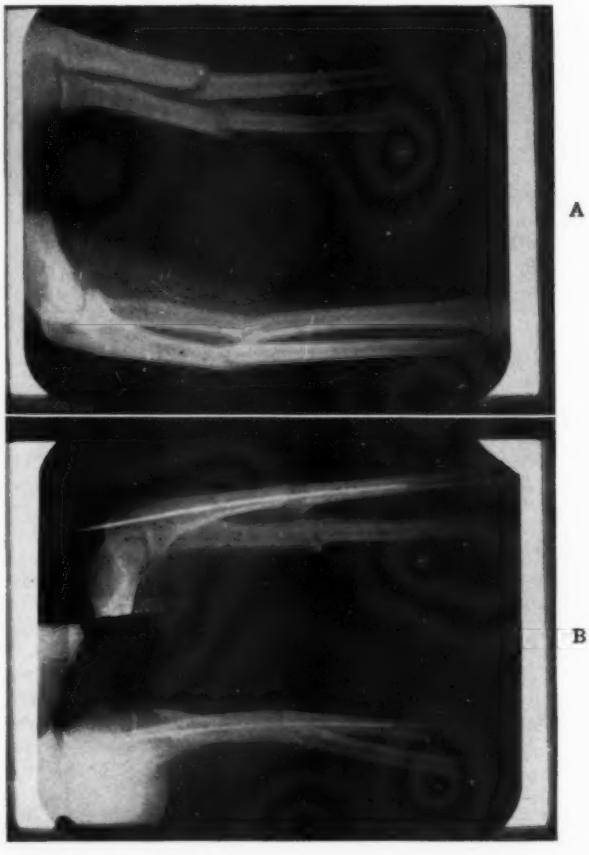


Fig. 3.—(A) Typical radial and ulnar fractures. (B) Use of single ulnar pin preferable when both bones of the forearm are fractured.

ADVANTAGES AND DISADVANTAGES

This method dispenses with prolonged bedrest and cumbersome traction apparatus and its local effects. It also does away with casts which prolong joint immobilization and produce the usual muscle atrophy. The financial advantage is untold considering that the patient with a femoral fracture may be discharged anywhere from the fourteenth to the twentieth day of hospitalization as compared with the usual 2 to 3½ months.

Callus formation is luxuriant but not always of good quality. Care must be taken when reading x-rays to be sure that callus is not due to intramedullary pressure. Stimulation due to a pin that is too tight will cause internal pressure and occasionally will produce a fracture-line absorption. This callus may be misleading and true bony union not attained until the pin or internal pressure is removed.

Infection does not seem to traverse the length of the medullary canal as might be supposed. In the few cases that have become infected, and particularly in one reported compound fracture[9] in which this method was used, the infection localized itself at the fracture site.

The hematopoietic response to intramedullary pinning is variable, but not of importance. Ten cases from the Campbell Clinic[10] were reported to have a persistent relative eosinophilia which immediately returned to normal with the removal of the pins.

Fig. 4.—Example of exuberant callus around a tightly fitted femur pin.

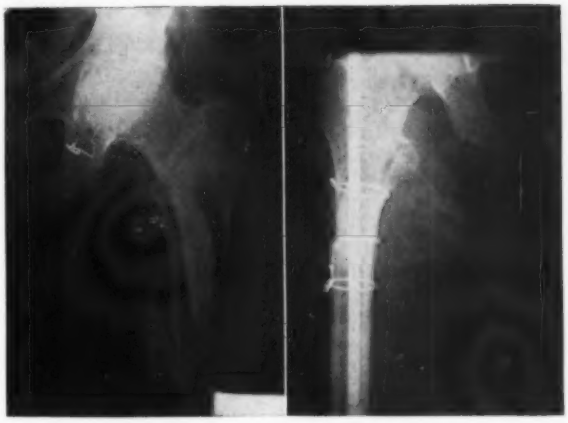
The incidence of fat embolism is apparently no greater in this procedure than in any other bone operation. Soeur[11] reported 1 case of pulmonary embolism in approximately 50 cases.

TYPE AND SIZE OF PINS

The pins should be of the highest grade of stainless steel available and although this may vary, the commonest type is No. 18-8 gauge, type No. 302 or No. 303. The diameter should be approximately three-quarters of the smallest portion of the medullary canal as calculated at the time of surgery. The length depends upon the method of insertion and location of the fracture, but for most cases the full length of the medullary canal should be traversed. The contour of the pin depends also on the method of insertion and contour of the canal: Femoral pins are straight or curved; tibial pins are curved at both ends to facilitate insertion; ulnar pins may be the straight nonflexible guide type; and radial pins are usually flexible Kirschner wire. Whether or not the nail is round, U-shaped, or diamond-shaped does not make any difference so far as is known at this time.

METHOD OF OPERATION

The method of choice today is one of open reduction at the fracture site, molesting as little of the periosteal tissue as possible, and setting the fracture ends with bone clamps. This is to insure proper reduction following insertion of the pin. In the direct method, used commonly for the ulna, radius and tibia, the reduced position is maintained and the pin is driven or drilled through the extent of the medullary canal. The ulnar approach requires a small longitudinal incision on the dorsum of the wrist and retraction of the extensor tendons of the thumb and index finger. The tibial canal is approached by a small incision over the tibial tubercle. Immediately above the tubercle a hole the diameter of the pin is drilled into the marrow cavity and the pin inserted with a mallet.



A B

Fig. 5.—(A) Comminuted spiral oblique fracture of the upper third of the femur. (B) Postoperative film showing Sofield intramedullary pin in place. Note lash wires around shaft and wire loop through a drill hole in the greater trochanter attached to the top of the pin, preventing superior displacement.

The retrograde or indirect method requires separation of the fragments following the original reduction and introduction of the pin into the medullary canal of the proximal fragment until the distal end of the pin has entered the marrow cavity. The fracture is then again reduced and maintained with clamps while the pin is driven or drilled into the distal fragment. This latter method is most applicable to the femur and ulna. Whether or not postoperative immobilization is necessary depends upon the type and extent of fracture. The most extensive types used are a light single-hip spica with early ambulation on crutches for femoral fracture; walking caliper 1 week postoperatively for tibial fractures; and dorsal splints for forearm fractures, with active exercise of elbow and

A B

Fig. 6.—(A) Simple spiral oblique fracture of the upper third of the femur. (B) Postoperative film showing Sofield pin and lash wires in place.

fingers and pronation and supination immediately following surgery.

CONCLUSIONS

1. Intramedullary pinning upholds three main principles of fracture care: Anatomical reduction, fixation of fragments; and immobilization of adjacent muscles and joints.

2. It is a relatively complicated surgical procedure but does not cause the extensive trauma attendant upon other methods.

3. It is too early to make conclusive statements concerning end results. However, intramedullary pinning can be recommended as a method of choice in certain types of fractures.

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Evaluation of Facet Arthrodesis of the Lumbar Spine

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Internal fixation for facet arthrodesis of the lumbar spine has been employed for a variety of conditions during 1947. Of a total of 102 operations for low-back complaints, 50 were fusions by this method. Of these 50, 11 operations were performed for spondylolisthesis, and 39 were operations in conjunction with laminectomy for the removal of herniation of one or more lumbar intervertebral disks. In all, 174 joints were fused in this manner.

Of the 50 patients in whom internal fixation for facet arthrodesis was employed, 2 developed postoperative infections which were superficial in nature. Removal of transfixing screws was not necessary in any case in this series or in the 25 cases reported previously.

In the great majority of cases fixation occurred at the lumbosacral or fourth and fifth lumbar levels, though internal fixation for facet arthrodesis has been employed as high as the first and second lumbar level.

Of the 75 cases thus operated upon, only 2 cases have shown osteolytic reaction about the transfixing screws as demonstrated by diminished density about the screws on serial x-ray examination. Apparently this reaction has not affected the clinical outcome of the cases so involved. In no case has a screw become loosened or migrated.

Arthrodesis has required a minimum of 6 months and a maximum of 12 months. All cases have been kept under radiographic control until complete fusion has been demonstrated.

OPERATIVE TECHNIC

The patient is placed in the lateral position on the operating table, with the knees drawn upward as high as possible to obliterate the lumbar lordosis. By this position the intervertebral foramina are enlarged to their fullest extent. A midline incision is employed and is carried down on either side of the spinous processes. The muscles and ligaments are cleared from the spinous processes and laminae, exposing the arthrodials laterally. The posterior capsular ligament is incised transverse to the line of the articular fissure. After the plane of the facet facing has been determined, the articular cartilage is removed as completely as possible by curet, Myerding chisel, and sawtooth curet.

For the proper placement of the transfixing screws it is necessary to sever the supraspinous and interspinous ligaments at the lumbosacral level, followed by severing of the spinous processes of the involved vertebrae at their base, retracting the osteoligamentous flap cephalward.

By means of a center punch, a small hole is punched through the outer cortical bone of the lamina. By placing the tip of a 7/64 inch drill in this hole "wandering" of the drill point is prevented. The drill is then directed to pass through the two facets so that the tip will penetrate the pedicle of the vertebra below. A vitallium screw is then placed in the tunnel thus created and drawn up taut, and the same procedure carried out on the other side.

For the proper placement of the screws it is essential to study the radiographic anatomy of the involved vertebral segments. Anomalies of development of the neural arches occur with such frequency that no hard and fast rule can be laid down as to the proper direction of the drill; each case must be studied individually. By experience 1 inch screws have been found necessary at the lumbosacral level, while at other levels ¾ inch screws provide adequate penetration. Rigid fixation can be demonstrated following fixation, by grasping the spinous process and lifting upward.

During the drilling of the articular processes and placing of the screws, an unscrubbed assistant places his hand on the upper posterior thigh on the side being operated upon, to test for muscle twitching, indicating irritation of the spinal nerve at that level. In case twitching is detected the screw must be removed and replaced at a different angle to prevent such impingement of nerve trunk. Otherwise a persistent radicular syndrome may result.

Supplemental bone grafting has not been employed in this series of cases, though others use such technic, usually employing grafts from the ilium after preparation of the laminae and spinous processes by elevating small bone chips.

The incision is closed with drainage.

POSTOPERATIVE CARE

The patient is allowed to move about his bed at will. On the seventh postoperative day ambulation is begun unless complications have arisen. The spine is supported by a low-back brace, usually a Knight type, which he is instructed to wear whenever he is ambulatory. The average patient is able to leave the hospital within 2 weeks after surgery. His return to work is

dependent on the amount of physical effort required in the performance of his duties. He is instructed to do no lifting, pushing, or pulling until such time as there is radiographic evidence of healing of the arthrodesis, after which the brace is removed and exercises given to facilitate rehabilitation of the spinal musculature.

All of the patients in this series of cases have received osteopathic manipulative treatment by a method devised by Dr. C. Haddon Soden, Emeritus Professor of Osteopathic Therapeutics of the Philadelphia College of Osteopathy. This treatment consists of mobilizing the articulations of the feet and dorsiflexion and plantar flexion of the foot on the leg. The manipulations must be carried out gently and not cause the patient any pain. That the lumbosacral region and the sacroiliac areas are mobilized is readily attested by the patient, probably because that area is made hypersensitive by the surgery. Such relaxation is very effective in relieving much of the postoperative pain, without any danger of disturbing the arthrodesis. Treatment is given twice daily.

Several weeks after discharge from the hospital, in addition to the above manipulations, local muscular manipulative treatment is recommended, with gentle stretching of the hamstring and gluteal musculature. All manipulations must be given gently and "short of pain." Active mobilization of the lumbar region is contraindicated, of course. If heat therapy is used, it must be of the surface variety; short wave diathermy is contraindicated because of the imbedded metallic screws.

SUMMARY

Internal fixation for facet arthrodesis appears to be a most satisfactory method of lumbar fusion, which can be carried out quickly and with a minimum of operative shock.

Hospitalization is minimal as compared with that required in other methods of spinal fusion.

Rigid external fixation is unnecessary.

Serial radiographic studies are essential to determine complete arthrodesis.

Careful attention to anatomic detail is essential for the proper placement of the transfixing screws.

The patient and attending physician must be warned against the use of short wave diathermy treatment of the lumbosacral region, because of the danger of overheating of the metallic bone screws.

For proper evaluation of this method of arthrodesis, 5, 10, and 20-year checks should be made.

Clinically it appears that those patients having laminectomy for the removal of space-taking lesions of the cauda equina have better postoperative results if fusion of the involved area is performed. This is probably due to the fact that a vast number of patients suffer from anomalies of development in the lumbosacral region resulting in lumbosacral instability.

The coexistence of an unstable low back with space-taking lesions of the cauda equina of intervertebral disk origin occurs too frequently for its significance to be ignored. If one condition or the other is neglected, surgery will generally fail to give the desired postoperative result.

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Disorders of the Urogenital Tract Causing Low-Back Pain

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The human body being as complex an organism as it is, it behooves us as specialists to recognize that many pathologic conditions may influence distant organs in widely separated areas of the body. This situation exists in the fields of orthopedics and urology as well as in other specialties. In a recent survey[1] of 278 deaths by spinal cord injury during the war, it was found that those who lived beyond the point of emergency treatment had died as a result of urosepsis, usually resulting from infection due to catheterization over a long period of time or the inefficiency of an automatic bladder. This fact alone, I believe, will bring to you the thought that I am trying to emphasize in this paper.

Tumors of the testicle (teratomas, seminomas, and carcinomas), though relatively rare, comprise 6 per cent of the malignancies in men. Teratomas, though slow growing, metastasize very early and are not too virulent in their malignancy. Seminomas grow smoothly and rapidly and attain a large size in a very few months. They likewise metastasize in an early stage. Adenocarcinomata arising from the rete testis grow very rapidly and do not attain very large size but are very highly malignant. Metastasis usually occurs early.

Metastatic spread of testicular tumors is usually by way of the lymphatics along the course of the aorta from its bifurcation to the level of the renal vessels. Very occasionally one finds nodes over the sacral promontory. Retroperitoneal lymph nodes will reach an enormous size long before the testicular tumor is very apparent. Metastasis to the lungs, pleurae, and ribs, as previously stated, occurs very early in the disease which is occasionally recognized in the metastatic areas before the primary lesion becomes apparent. Early testicular tumors give rise to much sacral backache and certainly should be searched for in cases of unexplained sacral discomfort.

Hematoceles, hydroceles, and varicoceles, when quite large, are an obvious and frequent cause of lumbar backache. However, little is said of the small varicosities and hydroceles that, due to their slight added weight and impairment of venous blood supply, give rise to a constant dull ache in the sacral and lumbar area. Relaxation of the cremasteric fascia and muscle in older individuals allows a quite large scrotum and large scrotal content to be elongated, giving rise to a dragging dull pain in the lumbar area.

I am sure that we all recognize the backache of acute prostatitis, either of specific or nonspecific origin, but do we all recognize the chronic backache caused by chronic prostatitis and beginning prostatic hypertrophy? In chronic prostatitis and beginning hypertrophies, dull perineal pain or discomfort radiating down the gluteal regions or thighs is very common, in fact these conditions are so common that I think it necessary only to mention them. Beginning prostatic hypertrophy is very easily diagnosed by the history of frequency, nocturia, and presence of residual urine. Prostatitis, likewise, can easily be diagnosed by prostatic massage and obtaining prostatic fluid for microscopic examination.

Late prostatic hypertrophies with a large amount of residual urine or overflow incontinence should be easily recognized as well as lumbar backaches, but very frequently prostatic hypertrophy with a large amount of residual urine will go unrecognized and the patient be treated for thoracic backache due to the back pressure or infection of the kidneys.

A very common urological condition of orthopedic interest, which frequently goes undiagnosed until operative intervention is too hazardous, is early carcinoma of the prostate. Carcinoma of the prostate develops in one of three ways:

1. In a limited portion of the adult prostate, usually the posterior portion
2. Diffusely in one or both lobes of the normal prostate
3. In association with prostatic hypertrophy.

There are certain clinical characteristics of prostatic carcinoma that must be kept in mind. If the epithelial proliferation predominates over that of the fibrostroma, the growth is soft. If the opposite is the case, the growth is very hard. Therefore, it should be remembered that the absence of the typical stony hardness of late carcinoma does not exclude early malignancy.

Recognizing the methods of extension of prostatic malignancy beyond the prostatic capsule by way of the lymphatics and metastasis by the hematogenous route leads us to look for early metastases in the skeletal system. Very frequently the bones of the pelvis, femur, and spinal column are the sites of metastases. Carcinoma of prostate usually manifests itself by one of three well-defined clinical findings. The individual will have (1) frequency, difficulty in urination and retention, resembling in every respect the picture of benign bladder neck obstruction; (2) pain in the back, usually in the lumbar area with one or both sciatic nerves involved; or (3) hematuria.

Hematuria is seldom of a gross nature but occurred in 137 of 1,000 cases which were reported by the Mayo Clinic on a recent survey.[2] Of the three clinical pictures just mentioned, by far the most common is the second.

Bilateral sciatica in old men is so very prominent that Keys,[3] a foremost urologist in this country, considers it to be pathognomonic of prostatic carcinoma. Twenty-five per cent of the bony metastases from prostatic carcinoma are located in the lumbar spine and the bones of the pelvis. For this reason I feel that all patients with suspected malignancies of the prostate should have lumbar and pelvic x-rays, especially if they are men above middle age. Since so very frequently the first symptoms of prostatic carcinoma are those of the metastatic lesion or spontaneous fracture of the long bones. those presenting these manifestations should have a thorough prostatic examination for malignancy.

In examining for cancer of the prostate one should always examine well the apex and the base of the prostate for extention into the seminal vesicles and to determine whether or not the membranous urethra is involved. In prostatic malignancies a very definite induration and fixity of these two areas can be felt. Fixation of the gland is much more diagnostic of malignancy, especially if there is involvement of the seminal vesicles, than is stony hardness. Of course one must palpate for small nodules which are much more firm than the adjacent tissue throughout the gland. A combination of digital and cystoscopic palpation will lead to an early diagnosis in many of these cases. Fixation and rigidity of the bladder neck are of great diagnostic importance.

Abnormalities and malformations of the ureters also frequently give rise to lumbar and thoracic backache. I have in mind a recent case in which the patient, 37 years of age, did not remember when she was free of backache. She was referred to us for persistent pyuria. During the course of the examination, it was observed cystoscopically that she had bilateral ureteroceles. It was necessary to pass a No. 4 catheter, as that was the only instrument that would pass the stenosis in the meatus. Through the years, of course, there had been a tremendous change taking place in the kidney in the form of bilateral hydronephrosis, but the simple procedure of bilateral internal ureteral meatotomy completely relieved the patient of backache and she has remained free of it for 6 months.

Another interesting case is that of nephroptosis of the right kidney, with a ureterocele at the junction of the middle and lower third of the ureter giving rise to a thoracic backache and a chronic recurring, almost persistent sacroiliac lesion on the side affected. The patient was completely relieved by the presence of an indwelling catheter. With that fact in mind, nephropexy was performed and the ureter was freed beyond the point of the ureterocele. The patient has had no recurrence of her backache after observation for more than 18 months.

In the time allotted for this paper I have found it impossible to cover the urological system as thoroughly as I would have liked, but I do hope that by bringing out some of the unusual urological complications causing back pain, your line of thought may be directed more often in the future to these urological entities.

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DISCUSSION

CHARLES H. BRIMFIELD, D.O., York, Pa.—From the orthopedic viewpoint, urogenital disease warrants particular attention for the purpose of differential diagnosis.

In my own experience, I have found that there are few cases of low-back pain which arise from true kidney disease, although bladder or prostatic pathology does, in many instances, present a picture of low-back distress. This statement cannot be taken too dogmatically, as there are exceptions to every rule.

The second thought that is of utmost importance to the orthopedist is to be constantly suspicious of prostatic carcinoma in his evaluation of any low-back problem in the adult male.

It is conceivable that the determination of serum alkaline phosphatase should be considered as a standard part of initial examinations, along with other preliminary laboratory examinations.

Digital rectal examination should be routine in every low-back examination, although the tumor investigation is by no means the sole reason for this procedure. To clarify this point I would like to say that the rectum should be examined for inherent pathology, as well as for palpatory changes of the coccyx and surrounding ligamentous structures.

Dr. Choquette's discussion has aptly shown the frequent need of cooperation between specialists and general practitioners.

436 West Market St.

(DEPARTMENT OF PUBLIC RELATIONS)

(Continued from page 634)

of New York; HR. 7021, Mr. Jenkins of Pennsylvania; HR. 7022, Mr. van Zandt of Pennsylvania; HR. 7023, Mr. Eberharter of Pennsylvania; HR. 7007, Mr. Kelly of Pennsylvania; HR. 7008, Mr. McDowell of Pennsylvania; HR. 7009, Mr. Morgan of Pennsylvania; HR. 7013, Mr. Smathers of Florida; HR. 7025, Mr. Javits of New York; HR. 7026, Mr. Buchanan of Pennsylvania; HR. 7027, Mr. Chelf of Kentucky.

H. J. Res. 388—Mr. Bartlett of Alaska. Authorizes appropriation for Public Health Service investigation of health problems in arctic regions. Cites studies made by American Medical Association and American Public Health Association.

H. J. Res. 409—Mr. Judd of Minnesota. Provides for U. S. membership in World Health Organization. President to name three delegates and also alternates to World Health Assembly, and to appoint, with advice and consent of Senate one member of the World Health Organization executive board, such appointee to "be a graduate of a recognized medical school and to have spent not less than 10 years in active practice as a physician or surgeon." S.J.Res. 98 passed in lieu (Public Law 643).

H. J. Res. 435—Mr. McMahon of New York. Authorizes a commission to study field of educational nursing.

H. Con. Res. 212—Mr. Beall of Maryland. Expresses sense of Congress that research on familial aspects of chronic disease and investigation of practical methods of furnishing family health services should be expanded and intensified, and that the Public Health Service should extends its activities toward this end.

S. 1454—Amend Public Health Service Act. Contains provision reading:

> "Graduates of colleges of osteopathy whose graduates are eligible for licensure to practice medicine or osteopathy in a majority of the States of the United States, or approved by a body or bodies acceptable to the Administrator, shall be eligible, subject to the other provisions of this Act, for appointment as commissioned medical officers in the Public Health Service." Public Law 425, approved February 28, 1948.

S. 1661—Raises pay of doctors and dentists in the Service. Public Law 365, approved August 5, 1947.

S. 2215—Amends Public Health Service Act to create National Heart Institute. Public Law 655, approved June 16, 1948.

S. 2385—Establishes a National Science Foundation. Passed Senate May 5, 1948.

S. 2655—Selective Service Act of 1948. Public Law 759, approved June 24, 1948. (Summarized in July JOURNAL, page 571).

S. 2711—Mr. Morse of Oregon. Establishes Federal Bureau of Asylums for inspections of all institutions which obtain Federal grants of money, and which are caring for mental patients.

S. 2765—Mr. Morse of Oregon. Revision of S. 2745.

S. 2894—Mr. Tobey of New Hampshire. Amends Public Health Service Act to create National Multiple Sclerosis Institute.

S. 2896—Mr. Sparkman of Alabama, for himself, and Messrs. Johnston of South Carolina, Hill of Alabama, Stewart of Tennessee, McGrath of Rhode Island, McFarland of Arizona, Aiken of Vermont, Flanders of Vermont, Morse of Oregon, and McCarthy of Wisconsin. Establishes a Federal Commission on Services for the Physically Handicapped.

S. Res. 216—Mr. Byrd of Virginia. Establishes a subcommittee of the Senate Armed Services Committee to exercise a continuous watchfulness and a continuous study over Armed Services policies and practices.

S. Res. 249—Mr. Smith of New Jersey, for himself Messrs. Ball of Minnesota, Donnell of Missouri, Murray of Montana, and Pepper of Florida. Authorizes and directs Senate Committee on Labor and Public Welfare through the Subcommittee on Health to continue its study of the health problems of the nation, consult thereon with Federal agencies and with other agencies, organizations or persons, and report to Senate not later than March 15, 1949, the results of the study, together with such proposed legislation, if any, and such recommendations as the Subcommittee may deem desireable. Agreed to June 12, 1948.

S. J. Res. 98—Authorizes U. S. membership in World Health Organization. See H. J. Res. 409. Public Law 643, approved June 14, 1948.

LONGEVITY IN UNITED STATES SETS NEW MARK IN 1946

The average length of life of the people of the United States based on 1946 death rates reached a new high of nearly 67 years, according to Federal Security Administrator Oscar R. Ewing. He based his statement on life tables for 1946 compiled by FSA's National Office of Vital Statistics, Public Health Service. This represents an increase of almost a full year over the corresponding figure for 1945, and an increase of nearly 2 years over the level prevailing in the immediate prewar period, 1939-1941.

The 1946 life tables have been prepared separately for white and nonwhite males and females, and show that the expectation of life at birth for white females is now 70.3 years, exceeding the biblical "three score and ten" for the first time in the history of the nation. On the average, white men do not live as long, their average length of life being 65.1 years.

The average longevity of nonwhites is still lower, the corresponding 1946 figures being 61.0 years for nonwhite females and 57.5 for nonwhite males. However, the improvement between 1945 and 1946 was greater for the nonwhite than for the white population. In fact, a narrowing race differential in longevity has been observed since 1900.

The expectation of life at birth has steadily increased since the turn of the century, largely as a result of the control of infectious diseases, which formerly took a heavy toll of lives among infants, children, and young adults.

PARALYZED VETERANS MAY PURCHASE SPECIALLY DESIGNED HOMES UNDER NEW LAW

The President has signed into law H. R. 4244, which provides certain paralyzed veterans with Federal grants up to $10,000 for the purpose of purchasing or remodeling homes especially designed for wheel chair living, Veterans Administration announced.

Eligible under the law are veterans of war or peace who served in the armed forces since April 21, 1898, who have a permanent-total service-connected disability, due to a spinal-cord disease or injury, resulting in paralysis of the legs and lower part of the body.

The purpose of the law is to provide these disabled veterans, who must spend a major part of their lives in wheel chairs, with homes especially adapted to their needs.

The special features which may be incorporated in such homes include ramps, instead of steps or stairs, extra-wide halls and doorways, larger rooms, special bathroom arrangements and fixtures and, in some cases, exercising facilities.

In determining the eligibility of applicants, VA is required to ascertain that it is medically feasible for the veteran to live in the house, that its cost bears a proper relationship to his income, and that it is suitable to the particular veteran's requirements.

VA also is authorized to supply eligible veterans, free of charge, with model plans and specifications of suitable housing units.

Veterans who qualify are entitled to a grant, not to exceed 50 per cent of the total cost of the home or a maximum of $10,000, with which to buy or build a new home, to remodel an existing home, or to liquidate indebtedness in connection with such a special home already acquired. The law limits each veteran to a single housing unit, but the grant may be applied toward the purchase of both the building site and the house.

Veterans who receive assistance under the new statute do not forfeit their eligibility for VA loan guarantees under the GI Bill, and it may be possible for World War II

veterans to finance a portion of their home projects under the latter law, VA said.

Instructions as to where and how veterans may apply for benefits will be issued in the near future. Until then, VA requests that these veterans refrain from making inquiries on this subject at VA offices.

FOLLOW-UP PROGRAM ON TUBERCULOUS PATIENTS PLANNED BY VA

Veterans Administration has inaugurated a comprehensive follow-up program, designed to enhance and prolong the effects of hospital treatment, among the thousands of veterans suffering from tuberculosis.

More than 13,000 veterans suffering from tuberculosis now are under the care of VA. A total of 80,763 veterans are receiving compensation or pensions for tuberculosis.

Cooperating in the program are all of VA's 126 hospitals and 70 regional offices.

Dr. John Barnwell, chief of Tuberculosis Service in the Department of Medicine and Surgery, said VA's follow-up program is designed to discover relapses among tuberculosis sufferers early so that further treatments may be instituted promptly. It further is designed to help prevent advanced disease and thus contribute toward the safeguarding of others through the control of communicable tuberculosis.

Dr. Barnwell summarized the intent and scope of the program with the following statement:

"VA's responsibility for the care of tuberculous patients does not terminate when veterans are discharged from hospital treatment. All patients require further examinations; some will need further treatment, and others will require a period of rehabilitation before they resume normal activities."

Each veteran-patient, before he is discharged from the hospital, will be fully advised what to do to assist in keeping the disease under control. Among other things, he will be urged to report at regular intervals for x-rays, fluoroscopic examinations, sputum tests, or other necessary checks or treatment.

Veterans with service-connected cases of tuberculosis can be handled, generally, in the outpatient departments of VA regional offices or hospitals without the necessity of admission to hospitals.

Those service-connected cases, however, may obtain the services of qualified physicians or of recognized institutions near their homes for this follow-up care if they are authorized to do so beforehand by VA.

VETERANS IN TRAINING IN MEDICINE AND RELATED FIELDS

One in every 25 World War II veterans training under the G.I. Bill is preparing for a career in medicine or in a related field, a Veterans Administration survey revealed.

On December 1, 1947—date of the survey—101,447 ex-servicemen and women were enrolled in educational institutions and were training on-the-job for medical positions and professions ranging from laboratory technicians to surgeons.

More than 40 per cent, or 43,558 were studying medicine. Of these, 18,265 were in premedical training, and 25,293 were enrolled in medical schools.

A total of 17,486 were in dentistry. Of these, 7,244 were taking predental training; 7,314 were in dental schools; 2,600 were studying dental mechanics; and 328 were training to be dental hygienists.

Veterans training to become pharmacists numbered 13,245. All but 890 were in schools of pharmacy. The 890 were training on-the-job in pharmacies.

A total of 5,194 were training to become laboratory technicians and assistants. About two-thirds, or 3,628, were training on-the-job, and the remaining 1,566 were enrolled in school courses.

Of the remaining veteran-trainees, 6,835 were studying optometry; 4,459, nursing; 3,463, chiropractic; 1,789, veterinary medicine; 1,166, preveterinary medicine; 1,145, chiropody; 712, osteopathy; 357, physical therapy; 591, public health medicine; and 1,066, other types of medical services.

The VA survey lists occupational fields of some 2,000,000 veterans studying in schools and colleges, and 546,000 training on-the-job.

Veterans are eligible for education and training under the Servicemen's Readjustment Act (G.I. Bill) if they served in the armed forces between September 16, 1940, and July 25, 1947; had 90 days or more of active service; and were released under conditions other than dishonorable.

The 90-day minimum service requirement is waived in the case of veterans released because of service-connected disabilities.

HEALTH EMERGENCY PLANNING UNIT

Establishment of a Health Emergency Planning Unit in the Public Health Service was announced July 1 by Federal Security Administrator Oscar R. Ewing.

Dr. Norvin C. Kiefer, Senior Surgeon, will direct the unit with the assistance of Gordon E. McCallum, Sanitary Engineer. The unit will cooperate with the National Security Resources Board, the Office of Civil Defense Planning of the National Military Establishment, the Military Services, and State Health Departments, as well as professional and voluntary organizations, to plan a coordinated program for safeguarding public health during a national emergency. Existing facilities within the Public Health Service will be surveyed in order that those with significance during a national emergency can be readily integrated with civil defense plans.

The new unit will also draw plans for more comprehensive public health catastrophe services to be offered in response to peacetime emergency requests from States. The Public Health Service has, for some time, rendered such services through its Communicable Disease Center. These efforts have been concentrated primarily on sanitary engineering problems, such as control of rodent and insect carriers of disease, and protecting the safety of water and food during major disasters.

NEW VA APPOINTMENTS

Dr. William Reid Morrison, internationally-famous surgeon of Boston, Mass., has accepted the post of chief consultant for surgery of Veterans Administration, Dr. Paul B. Magnuson, chief medical director, announced May 27, 1948.

Dr. Morrison, one of the founders of the American Board of Surgery and for many years an outstanding teacher in medical schools, will devote a major portion of his time to the surgical problems of veterans. Long interested in veterans and their medical rehabilitation, Dr. Morrison has resigned as national surgeon general of the Veterans of Foreign Wars in order to have more time to devote to VA's medical program. He recently completed a nation-wide tour of VA hospitals.

Dr. Morrison will bring to VA his vast knowledge of surgery and his skill as a teacher, seeking to further improve the medical standards in the VA regional office clinical service as well as in the 126 hospitals which VA operates, Dr. Magnuson said.

Dr. Morrison, who was born in Boston July 10, 1889, was graduated from Harvard College in 1910 and from the Harvard Medical School cum laude in 1913.

Appointment of Dr. Augustus Thorndike, prominent Boston, Massachusetts, surgeon, as director of Veterans Administration Prosthetic and Sensory Aids Service, effective July 1, 1948, was announced June 27. Dr. Thorndike succeeds Walter M. Bura, who has resigned effective June 30, 1948, to return to private business.

Dr. Thorndike, a native of Boston, was graduated from Harvard Medical School in 1921. He is an associate in surgery at Harvard Medical School; chief surgeon in the Department of Hygiene, Harvard University; associate surgeon, Children's Hospital, Boston, and consultant in traumatic conditions at Massachusetts General Hospital.

Book Notices

ACADEMY OF APPLIED OSTEOPATHY YEAR BOOK 1948. Lithographed, paper bound. Pp. 208, with illustrations. Published by The Academy of Applied Osteopathy, Edward Brothers, Inc., Ann Arbor, Mich., 1948.

The 1948 Year Book was distributed to members of the Academy of Applied Osteopathy early in June. In the Foreword, Thomas L. Northup, D.O., chairman of the Publications Committee, states that the Academy is completing its tenth year as an organization devoted to strengthening the interest in the basic principles of osteopathy as outlined by the founder and dedicates the 1948 Year Book to Andrew Taylor Still.

Dr. Northup also states, as he has in former years, that the articles contained herein are but "work sheets" of the writers and should in no way be considered finished products. They do not carry the endorsement of the Academy of Applied Osteopathy or the American Osteopathic Association. They are the contribution of authors who want to be of service to Academy members and the profession by sharing their experiences with them. This material for the most part is published as given, unedited and without question.

The lead article, "Foundation Stones of Osteopathic Education," by Mary Alice Hoover, D.O., gives a review of six books, now nearly a half century old, which recorded the beginnings of osteopathy, its philosophy and principles, its technic of practice. This is followed by a reproduction of a letter written by Andrew Taylor Still in 1915 to the president of the American Osteopathic Association in which Dr. Still called upon the profession to remain loyal to the basic principles of osteopathy and by constant research to keep digging for nuggets of osteopathic truth. The titles and authors of the remaining articles are given as follows in the table of contents:

Cervical, Brachial, Lumbar and Sacral Plexuses—Dissections by H. H. Fryette, D.O.

Osteopathy—H. H. Fryette, D.O.

Dr. Fryette's Spinal Technic—H. V. Hoover, D.O.

Respiratory Technic Developed by W. G. Sutherland, D.O.—Howard A. Lippincott, D.O.

Precautions in the Use of Lift Therapy—Wallace M. Pearson, A.B., D.O.

The Osteopathic Lesion and the Thinned Disc—J. J. Dunning, D.O.

Echoes from Dr. Still's Lectures to the Class of Ninety-Six—H. H. Gravett, D.O.

Life, Death and Atoms—Mary Alice Hoover, D.O.

Laws of Structure and Function; Manipulation of Ligamentous Attachments; Osteopathic Treatment of Goiter; Man vs. the Quadruped, and Treatment of the Eyes—Martin D. Young, D.O.

Osteopathic Cranial Technic and Its Influence on Hypertension—Thomas L. Northup, D.O.

Pancreatic Stimulation and Blood Chemical Changes—Stanley G. Bandeen, D.O.

Seminar: Acute Rheumatic Fever—Etiology—C. M. Scott, D.O., and Treatment—Charles E. Medaris, D.O.

Seminar: Eye, Ear, Nose and Throat Problems for the General Practitioner—Lucius M. Bush, D.O.; C. Paul Snyder, D.O., and C. C. Reid, D.O.

Our Osteopathic Language—Anne L. Wales, D.O.

Osteopathic Pathology and the Blood Capillary—Charles H. Kauffman, M.S., D.O.

A Consideration of an Osteopathic Lesion of the Whole Liver and Its Effect on Hepatic Function—H. V. Hoover, D.O.

Illustrations of Visceral Technic—M. D. Young, D.O.

Technic for Post-Surgical Hospital Patients—Donald Siehl, D.O.

The Balanced Pelvis and Its Relationship to Reflexes—Fred L. Mitchell, D.O.

Local Chapters of the Academy of Applied Osteopathy—H. V. Hoover, D.O.

Outstanding Case Report—Birth Injury—E. Ellis Bush.

Case of Birth Injury or Cranial Trauma—Howard A. Lippincott, D.O.

A Study of Sacral Technic—James A. Stinson, D.O.

Turfler's Key Lesions—F. A. Turfler, Sr., D.O.

The Year Book contains the names of the officers, board of trustees, board of governors, and committees; annual reports; and a geographical and alphabetical listing of members of the Academy. It also contains the names of officers and committee chairmen of the Osteopathic Cranial Association and reports of local osteopathic cranial study groups.

YEAR BOOK AND DIRECTORY 1947-1948. Lithographed, paper bound. Pp. 62. Published by the American Osteopathic Society of Herniologists. John Joseph Lalli, D.O., Secretary-Treasurer, 3713-15 74th St., Jackson Heights, L. I., N. Y.

This book contains nine scientific articles; the program of the 1947 convention of the American Society of Herniologists and Phlebologists held in Grand Rapids, Mich., July 19 and 20; the names of the officers and committee chairmen of the Society; minutes of the business meeting of the Society at Grand Rapids; the scripts of three radio broadcasts; reprints from newspaper articles on injection treatment by William Brady, M.D., and a geographical and alphabetical listing of the members of the Society.

The technical articles are as follows:

Experiences—Bad and Good—D. L. Anderson, D.O.

Varicose Vein Technique as Practiced in My Office—George T. Hayman, D.O.

Applied Psychology in Herniology—John Joseph Lalli, D.O.

Treatment of Umbilical Hernia—Holcomb Jordan, D.O.

Hernia in Infancy—L. M. Monger, D.O.

Hernia and Its Injection Treatment—John F. Bumpus, D.O.

Little Finger Technic—R. R. Norwood, D.O.

Single Silica Implantation of Inguinal Hernia—C. C. Matheny, D.O.

Hernia Patter—Nelson J. Walter, D.O.

DISEASES OF THE SKIN. By Oliver S. Ormsby, M.D., Rush Professor of Dermatology Emeritus, University of Illinois; Attending Dermatologist to the Presbyterian Hospital of Chicago; Member of the American Dermatological Association and the American Academy of Dermatology and Syphilology; Corresponding Member of the Section of Dermatology of the Royal Society of Medicine, London; of the Société Francaise de Dermatologie et de Syphiligraphie, Paris; of the Dansk Dermatologisk Selskab, Copenhagen; Honorary Member of the Wiener Dermatologische Gesellschaft, Vienna; of the Japanese Dermatological Society, Tokio; of the Greek Union of Dermatology and Venereology; of the Hellenic Antivenereal Society, Athens; and of the Asociación Argentina de Dermatologia y Sifilologia, Buenos Aires, and Hamilton Montgomery, M.D., M.S., Associate Professor of Dermatology and Syphilology, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota, Rochester, Minnesota; Associate in Section on Dermatology and Syphilology, Mayo Clinic; Member of American Dermatological Association; American Academy of Dermatology and Syphilology; Society for Investigative Dermatology; Corresponding Member of the Societas Dermatologica Hungarica, Budapest; of the Asociación Argentina de Dermatologia y Sifilologia, Buenos Aires; of the Société Francaise de Dermatologie et de Syphiligraphie, Paris; Honorary Member of the Sociedade Brasileira de Dermatologia e Sifilografia. Ed. 7, thoroughly revised. Cloth. Pp. 1462, with illustrations. Price $18.00. Lea & Febiger, Washington Sq., Philadelphia, 1948.

This complete and thorough text excels in three phases of dermatology: (1) The histopathology of skin disease (it is a manual within a text), (2) the etiology of the various dermatoses (it projects the opinions of the authors and also the opinions of those who do not agree with them), (3) treatment (therapy is presented in the broad discussion manner, setting forth the multiple approaches to many of the complicated problems of dermatology). This discussion of therapy is sometimes carried to a point where the general practitioner may become confused by the very number of opinions given. For such disease as psoriasis, lichen planus, dermatitis herpetiformis, and pemphigus, the endless therapeutic suggestions leave many uncertain as to where to begin.

This edition has been enlarged over the sixth and been brought up to date on therapy (antibiotics, fatty acids). Many new pictures have been added and sections have been revised.

The section on mycology approaches the problem from the dermatologist's viewpoint rather than from that of the laboratory mycologist; it is therefore easier to read and the desired clinical facts are more readily obtainable. Therapy includes those medications developed in World War II.

The arrangement of the book makes it suitable for rapid and detailed reference. The classifications are so listed that the visual examination of the patient gives all the necessary facts as to where to begin looking for an explanation of the disease process. The liberal use of pictures helps to identify and describe the disease.

Sections of the diseases of the hair and hair follicles, and diseases of the nails are detailed and thorough. The section concerning diseases of the mucous membranes in proximity to the skin is a source of information that even the general practitioner should not be without.

The book is interestingly written; in investigating one subject it is easy to be distracted by a second so that by the time the text is put down several things have been reviewed instead of one.

A. P. Ulbrich, D.O.

OCCUPATIONAL DISEASES OF THE SKIN. By Louis Schwartz, M.D., Medical Director, United States Public Health Service, Chief Dermatoses Section; Associated Clinical Professor of Dermatology and Syphilology, New York University; Adjunct Professor of Dermatology and Syphilology, Georgetown University; Louis Tulipan, M.D., Clinical Professor of Dermatology and Syphilology, New York University, College of Medicine, New York City; Consulting Dermatologist, Manhattan General Hospital; Associate Dermatologist and Syphilologist to Bellevue Hospital, and Samuel M. Peck, B.S., M.D., Dermatologist, Mt. Sinai Hospital, New York City; Medical Director, Inactive (R) U.S.P.H.S. Ed. 2, thoroughly revised. Cloth. Pp. 964, with illustrations. Price $12.50. Lea & Febiger, Washington Sq., Philadelphia, 1947.

This book should be in the office of all physicians who see even one case of industrial dermatitis a year. It is a ready reference to the skin hazards of practically every occupation. The effect of a cross index is given by listing the means of producing the dermatitis, such as mechanical factors, irritants, allergens, caustics, heat, and atmospheric conditions. Then individual substances as zinc and its compounds, chromic acid and the chromates, petroleum, etc., are discussed. Next various types of manufacture are explained. The industry is reviewed in the terms of the workers, these terms being explained. For example, in the rubber industry "bloom" means those substances that are used as fillers and which in the process of curing remain on or extrude to the surface. This "bloom" becomes the irritant or allergen that causes dermatitis from such things as surgeon's gloves and the elastic in garters and brassiere straps.

The book is interesting reading as a general source of information other than medical. It discusses the tanning of leather, the manufacturing of sugar (cane and beet), artificial pearls, alcohol, silk production, as well as other manufacturing processes. Descriptions of ways and means of production are based on inspections the authors have made. Skin irritants employed in the various industries are discussed, and if patch testing should be undertaken, the material with which to test is suggested.

The section on diagnosis of industrial skin disease includes a detailed explanation of patch testing that is far superior to any found in allergy tests; there is enough information given that any student could apply a patch properly from the instructions. There is a list of the standard strengths of substances that are used for patch testing. It is possible to tell very rapidly whether the substance is a primary irritant and if so, in what strength and in what diluent it may be used.

The text has been completely revised and is up to date.

A. P. Ulbrich, D.O.

MAY'S MANUAL OF THE DISEASES OF THE EYE. Revised and Edited by Charles A. Perera, M.D., Assistant Clinical Professor, College of Physicians and Surgeons, Columbia University, New York; Asst. Attending Ophthalmologist, Presbyterian Hospital, New York. Ed. 19. Cloth. Pp. 521, with illustrations. Price $4.00. The Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore, 1947.

This is the nineteenth American edition of this well-known basic text on ophthalmology. Dr. Perera, who helped to revise the previous four editions, has revised and edited the material in this edition to include all essential new material and dedicated it to the memory of the late Charles H. May.

Several color plates have been replaced and new drawings used for illustrations. Also corrections and changes in the text bring the material up to date. New topics such as penicillin therapy, the modern theory of color vision and its anomalies, thyrotropic and thyrotoxic exophthalmos, congenital cataract following maternal rubella, and ocular brucellosis have been covered.

The appendix giving the ocular requirements for admission into any one of the armed services of the United States has been revised to meet the present standards.

The book remains an excellent text in the fundamentals of ophthalmology and should be invaluable to the student and general practitioner as well as the specialist.

MINOR SURGERY. By Frederick Christopher, B. S., M.D., F.A.C.S., Associate Professor of Surgery, Northwestern University Medical School Chief Surgeon, Evanston, (Illinois) Hospital. Ed. 6. Cloth. Pp. 1058, with illustrations. Price $12.00. W. B. Saunders Company, West Washington Square, Philadelphia, 1948.

In his preface to this sixth edition of a well-known and widely used text Dr. Christopher states the reason for and purpose of his book. He says: "As has often been pointed out, the distinction between minor and major surgery is at times difficult, if not impossible. In this volume are considered the pathogenesis, diagnosis and treatment of those conditions which comprise the large majority of surgical affections. Included is the surgery of the general practitioner, of the physician who does not have ready access to a large hospital or contact with surgical specialists, of the physician who has been unable to serve the prolonged apprenticeship in surgery necessary to fit him to carry out formal and complicated operations, and of the resident surgeon and surgical intern. It is neither easy surgery nor surgery without mortality. It requires alertness in diagnosis, thorough awareness of fundamental surgical principles and meticulous care with regard to treatment.

"At the present time there are not enough professors of surgery or even well trained general surgeons to take care of all the surgical conditions which are described in this book and which occur over the country at large. This volume therefore represents a sincere effort to bring to the doctors who must of necessity take care of the majority of these cases the latest advances and the most approved methods of treatment."

The book fulfills its purpose. It should be owned and studied by every physician who attempts the surgery covered in this volume.

POSTGRADUATE COURSES OFFERED

Chicago College of Osteopathy.—Refresher course and homecoming, featuring the twenty-fifth anniversary of the class of 1923 and the tenth anniversary of the class of 1938, September 20 to 25 inclusive. For further information write to R. N. MacBain, D.O., President, 5250 Ellis Ave., Chicago, Ill.

College of Osteopathic Physicians and Surgeons.—Laboratory surgery, September 6 to October 1. Write to Dean of Admissions, Graduate School, 1721 Griffin Ave., Los Angeles 31.

Des Moines Still College of Osteopathy and Surgery.—Ninth biannual postgraduate course in cranial work. Basic course, October 11 to 23; advanced course, November 1 to 13. For further information write John B. Shumaker, D.O., Dean, 720-722 Sixth Ave., Des Moines 9, Iowa.

Conventions and Meetings

Announcements

American Osteopathic Association, Fifty-Third Annual Meeting, St. Louis, July 11-15, inclusive. Program Chairman, K. R. M. Thompson, Chicago.

American College of Osteopathic Internists, Hotel Warwick, Philadelphia, December 1-4. Program Chairman, William F. Daiber, Philadelphia.

American College of Osteopathic Surgeons, Hotel Claridge, Atlantic City, N. J., October 10-14. Program Chairman, J. O. Watson, Columbus, Ohio.

American Osteopathic College of Radiology, Hotel Claridge, Atlantic City, N. J., October 10, 11. Program Chairman, M. Carman Pettapiece, Portland, Me.

Canadian Osteopathic Association, King Edward Hotel, Toronto, October 28-30.

Kansas, Allis Hotel, Wichita, October 10-13.

Kentucky, Louisville, October 13, 14. Program Chairman, Harold D. Benteen, Ashland.

Maine, Fall midyear meeting, Bangor, November 5, 6; annual meeting, Belgrade Lakes, June 16-18, 1949.

Massachusetts, Hotel Kenmore, Boston, January 15, 16, 1949. Program Chairman, Samuel B. Jones, Worcester.

Michigan, Pantlind Hotel, Grand Rapids, October 30-November 3. Program Chairman, W. Powell Cottrille, Jackson.

Missouri, Jefferson Hotel, St. Louis, October 18-21. Program Chairman, J. R. Dougherty, Vandalia.

New Jersey, Hotel Dennis, September 24-26. Program Chairman, R. W. Davis, Jr., Audubon.

New Mexico, Clovis, September.

New York, Hotel New Yorker, New York City, October 15, 16. Program Chairman, David J. Bachrach, New York City.

Oklahoma, Biltmore Hotel, Oklahoma City, October 12-14.

Pennsylvania, Penn Harris Hotel, Harrisburg, September 24-26. Program Chairman, Stuart F. Harkness, Harrisburg.

Tennessee, Nashville, October. Program Chairman, Perry Bynum, Memphis.

Vermont, Middlebury Inn, Middlebury, October 6, 7. Program Chairman, Marvin May, Brandon.

Virginia, Richmond, October 2. Program Chairman, A. G. Churchill, Arlington.

West Virginia, refresher course, Daniel Boone Hotel, Charleston, September 25, 26.

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*Reich, Button and Nechtow, "Treatment of Trichomonas Vaginalis Vaginitis," Surgery, Gynecology and Obstetrics, May 1947, pp. 891-896

OFFICIAL AND AFFILIATED ORGANIZATIONS

ARIZONA

State Society

The officers were reported in the July JOURNAL.

The committee chairmen are: Public affairs, A. B. Stoner; professional affairs, N. E. McBride; legal and legislative, W. Dale Jamison; editor, Homer E. Allshouse, all of Phoenix; membership, Homer M. Fredericks, Tucson.

State Society Auxiliary

The officers are: President, Mrs. J. Walter Larkin, Phoenix; vice president, Mrs. B. M. Gotshall, Tucson; secretary-treasurer, Mrs. R. O. McGill, Phoenix.

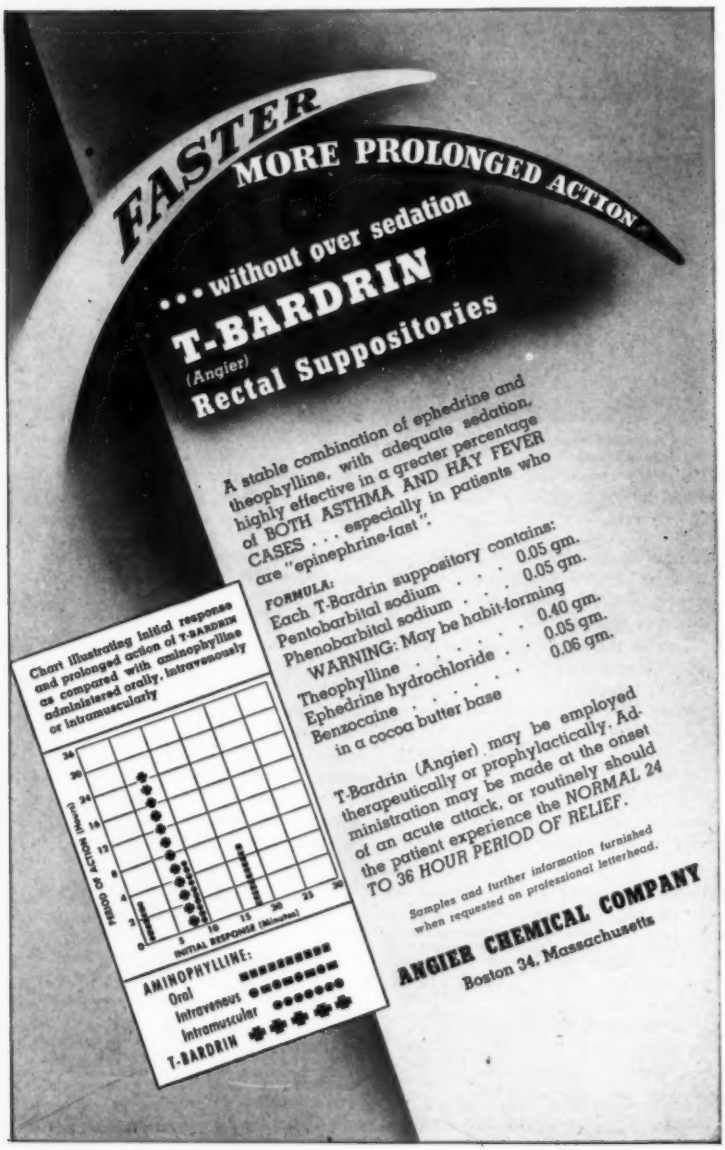
ARKANSAS

State Society

The officers are: President, H. V. Glenn, Stuttgart; president-elect, Irene G. Tavel, Texarkana; vice president and statistician, E. M. Sparling, Hot Springs; secretary-treasurer, R. M. Packard, Jonesboro; sergeant-at-arms, R. H. Mount, Siloam Springs.

C. C. Chapin, Little Rock, W. E. Bann, Texarkana, and C. A. Champlin, Hope, are trustees.

The committee chairman are: Publicity, C. C. Chapin; convention arrangements, Lulu H. Wright; radio, G. B. Bean, all of Little Rock; Osteopathic Progress Fund, Dr. Sparling; professional guidance, W. E. Bann,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Phenobarbital sodium . . . 0.05 gm.
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Theophylline . . . . . 0.40 gm.
Ephedrine hydrochloride . . 0.05 gm.
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Chart illustrating initial response and prolonged action of T-BARDRIN as compared with aminophylline administered orally, intravenously or intramuscularly
RECTAL RESPONSE (minutes)
AMINOPHYLLINE:
Oral
Intravenous
Intramuscular
T-BARDRIN

Texarkana; membership, Dr. Packard; program, P. W. Lecky, El Dorado.

CALIFORNIA

State Society Auxiliary

The officers are: President, Mrs. Henry L. McDowell, Long Beach; president-elect, Mrs. Lucius B. Faires, Los Angeles; recording secretary, Mrs. Clarence Hunter, Beverly Hills; corresponding secretary, Mrs. Frederick Dubin, Long Beach; treasurer, Mrs. Samuel Biddle, Los Angeles.

Mrs. Arvel Angell, Bakersfield, Mrs. Frank Piazza, Long Beach, Mrs. R. H. Coburn, Jr., Fresno, Mrs. George M. Handy, Los Angeles, and Mrs. P. F. Buscher, Oakland, are trustees.

The committee chairmen are: Executive, Mrs. Arvel Angell; membership and credentials, Mrs. Claire Pike, Long Beach; press and printing, Mrs. O. G. Ohlsson, Shafter; public affairs, Mrs. Richard Eby, Pomona; public health and child welfare, Mrs. John L. Bolenbaugh, Pasadena; C. O.-P.S. relations, Mrs. Otto Grua, Los Angeles; magazines, Mrs. Kenneth O'Brien, Fresno; bulletin, Mrs. Lester Nichols, Taft; diversional therapy, Mrs. Michael Papay, Rosemead; clinic, Mrs. David H. Payne, Whittier; scholarship, Mrs. Andrew May, Oakland; by-laws, Mrs. Angell.

Kern County

The officers are: President, S. H. Montgomery; vice president, Dwight H. Jones; secretary-treasurer, A. M. Tuttle, all of Bakersfield.

San Francisco County

The responsibility of physicians to diagnose promptly and properly psychiatric cases was discussed by Charles W. Norton, San Francisco, at the meeting in San Francisco, May 27.

The officers are: President, Harold Krelle; president-elect, Edith Salmon; secretary-treasurer, Charles W. Norton, all of San Francisco.

Parnell Buscher, San Francisco, and Clive Leap, San Mateo, are trustees.

COLORADO

State Society

The officers were reported in the July JOURNAL.

The committee chairmen are: Membership, N. E. Atterberry, Denver; program, Hollis Wolf, Colorado Springs; vocational guidance, H. L. Sander, Paonia; public relations and education, C. C. Thorpe, Longmont; legislation, Howard E. Lamb; Osteopathic Progress Fund, H. M. Husted; cancer, C. A. Tedrick; tuberculosis, Guy F. Dunn, all of Denver; veterans affairs, H. V. Anderson, Colorado Springs; industrial and institutional service, Roy Wolf, Canon City.

El Paso County

The officers are: President, Hazen V. Anderson; vice president, Anna J. Barnes; secretary-treasurer, W. H. Hayes, all of Colorado Springs.

Western Slope

H. L. Sanders, Paonia, presented four films on thyroid conditions and surgery at the meeting May 8.

Mr. George Fuller, Jr., of the Mesa Memorial Hospital administrative staff, discussed tax laws at the meeting held June 8.

A meeting was scheduled to be held at Paonia, July 13.

The officers are: President, G. R. Simpson, Grand Junction; vice president, James Drost, Delta; secretary-treasurer, H. L. Sanders, Paonia.

E. R. Morelock, Rifle, John Fox, Ben Maynard, R. O. Hinkle, all of Grand Junction, and Clyde Hyink, Montrose, are trustees.

CONNECTICUT

State Society

The officers are: President, Frank Poglitsch, New Britain; president-elect, Foster Clark, Torrington; secretary, Kenneth Adams (re-elected), Wethersfield; treasurer, J. P. Goodridge (re-elected), Hartford.

The trustees are: C. Raymond Watts, West Hartford, Frank Teall, New Haven, and James Berry, Hartford.

DISTRICT OF COLUMBIA

The officers were reported in the July JOURNAL.

The members of the board of directors are: Mary Williams Downes, Chevy Chase, Md., Allen H. Hinkel, Arlington, Va., David V. Pyne, C. D. Swope, and Winthrop P. Wilcox, all of Washington.

FLORIDA
State Society

The officers are: President, Morris P. Briley, Tallahassee; president-elect, Donald S. Cann, Daytona Beach; first vice president, Joseph R. Leary, Miami; second vice president, F. F. von Behren, West Palm Beach; secretary-treasurer and editor, Charles W. Vogler (re-elected), Delray Beach.

The trustees are: Edmond Flynn, Tallahassee, Julian R. Sams, Jacksonville, Gerard M. Miller, Orlando, Calvin J. Houpt, Daytona Beach, Dominic Raffa, Tampa, Roy T. Quick, West Palm Beach, Emery G. Pierce, Bradenton, and Stephen B. Gibbs, Coral Gables.

District Seven

The officers are: President, H. V. Pierce (re-elected), Bradenton; vice president, R. J. Kell, Sarasota; secretary-treasurer, Anne S. Newsome (re-elected), Sebring.

B. B. Cooper, Sarasota, D. R. Gettinger, Arcadia, and W. S. Horn, Palmetto, are trustees.

The committee chairmen are: Membership, T. G. Seay, Fort Myers; ethics and editor, Dr. Kell; hospitals and clinics, W. E. White, Jr., Bradenton; statistics, R. A. Peterson, Fort Myers; convention program and arrangements, radio and program, Dr. Cooper; legislation, Dr. Gettinger; vocational guidance and public health, Dr. Horn; industrial and institutional service, R. L. Johnson, Sebring; public relations, E. G. Pierce, Bradenton.

GEORGIA
State Society

The officers are: President, H. D. Webb, Columbus; vice president, Joseph L. McCrary, Jesup; secretary, Kenneth H. Wiley (re-elected), Atlanta.

The committee chairmen are: Advisory, Dr. Grover Jones; membership, Dr. Lucien L. Trimble; professional education, Lillian Bell Henrichs; hospital, Matt W. Henderson, both of Atlanta; ethics and censorship, R. E. Andrews, Rome; vocational guidance, Dr. McCrary; public health and education, Alexander Dahl, Atlanta; clinics, John W. Childers, Thomaston; publicity, D. L. Anderson, Atlanta; professional development, Ben Williams, Columbus; Federal-state coordination, Hassie Trimble, Jr., Moultrie; bulletin, Elizabeth Holmes, Dublin; education, Wilbur Blasingame, Cordele; statistics, Jack H. Lanier, Macon; legislative, D. C. Forehand, Albany; veterans affairs, Kenneth Wiley; radio, Frederick Nerbonne; professional liability insurance, Robert Glass; Osteopathic Progress Fund, Hoyt Trimble; convention and conference, entertainment, Walter Elliott, Jr.; hotel and specialists, Dr. Henderson, all of Atlanta; speakers, Frank Jones, Macon; exhibits, Dr. Williams.

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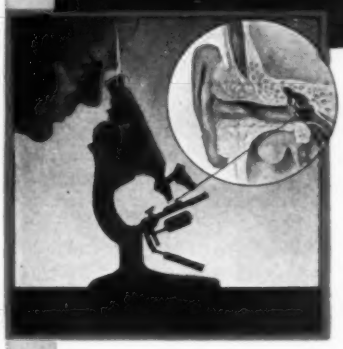

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HAWAII
Hawaii Osteopathic Society

The officers are: President, Elizabeth Gladding (re-elected); vice president, Josephine E. Morelock; secretary-treasurer, F. J. Cohen, all of Honolulu.

ILLINOIS
District Two

The officers are: President, M. G. Miller (re-elected), Freeport; vice president, B. J. Snyder, Fulton; secretary-treasurer, Lloyd R. Wood (re-elected), Oregon.

J. K. Swain, Sterling, is trustee.

The committee chairmen are: Membership, Dr. Swain; ethics, Charles Medaris, Rockford; hospitals, Dr. Wood; legislation, Ransom Dinges, Orangeville; vocational guidance and public relations, Stanley Adamson; public health, Harold Arfstrom, both of Rockford.

IOWA
Scott County

Augusta Tueckes Kritzer, Davenport, spoke on "The Influence of Cranial Lesions on Body Chemistry" at the meeting June 4 at Davenport.

KANSAS
Eastern

The officers are: President, Don Kirby, Garnett; vice president, Joseph W. Stella, Topeka; secretary-treasurer, T. O. Osborn (re-elected), Colony.

The committee chairmen are: Membership, Dr. Stella; hospitals, George D. Thorburg, Garnett; clinics and industrial and institutional service, Bayard Twadell, Iola; legislation, Fred Dunlap, Pleasanton; vocational guidance, Roy Brown, Topeka; public health, C. C. Kinnison, Bronson.

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Northeastern

The officers are: President, F. H. Kendall, Holton; vice president, E. R. Palmer, Atchison; secretary-treasurer, S. Ann Wiegers, Marysville.

A meeting was scheduled to be held in Horton August 11.

MAINE
State Society

The officers are: President, Kenneth Russell, Gray; vice president, Edward G. Drew, Waterville; secretary, Roswell P. Bates (re-elected), Orono; treasurer, Warren Bowers, Westbrook; sergeant-at-arms, Chester Mitchell, Wilton.

The board of directors are: Arthur Witthohn, Bangor, True Eveleth, Portland, Sargent Jealous, Saco, Lloyd Morey, Millinocket, and Paul D. Taylor, Dover-Foxcroft.

The committee chairmen are: Legislation, Dr. Eveleth; veterans care, Arthur Witthohn; insurance, Edward Witthohn, Bucksport; radio and annual convention arrangements, Elmer Whitney, Oakland; exhibits, editor, public relations, and membership, Dr. Bates; budget, Dr. Bowers; professional education, Lowell Hardy, Portland; hospitals, Earl Gedney; fetal and maternal mortality, Dewaine Gedney; fall convention arrangements, Burleigh Larlee, all of Bangor; veterans affairs, Robert Meehan, Rockland; vocational guidance, Martyn Richardson, Saco, public health and vocational rehabilitation, Dr. Jealous; clinics, Dr. Taylor; ethics, G. Fred Noel, Dover-Foxcroft; historian, M. C. Pettapiece, Portland.

MASSACHUSETTS
Essex County

The officers are: President, A. M. Longley (re-elected), Newburyport; vice president, A. H. Bunting (re-elected); secretary-treasurer, C. H. White, both of Lynn.

P. G. Norris and R. W. Boyd, both of Lynn, are trustees.

The committee chairmen are: Membership, legislation, convention program and arrangements, Dr. Boyd; ethics, E. B. Whiting; hospitals, clinics, and statistics, Dr. White; vocational guidance, public health, public relations, and industrial and institutional service, Dr. Norris.

MICHIGAN
Kalamazoo Tri-County

The program for the meeting held June 17 included speeches by a team from the Grand Rapids Osteopathic Hospital staff: Louis Monger on hospital management, Edward LaChance on laboratory assistance, and R. J. Krainik on liver function tests.

MINNESOTA
State Society Auxiliary

The officers are: President, Mrs. E. G. Callahan, Winona; first vice president, Mrs. G. A. Stohlberg, Stillwater; second vice president, Mrs. Phil Morrison, Faribault; treasurer, Mrs. Robert Sampson, Lamberton.

The committee chairmen are: Printing and publications, Mrs. Sidney Hedeen; legislative, Mrs. George Miller, both of St. Paul; revision of constitution, Mrs. John Voss, Albert Lea; scholarship, Mrs. Robert Clark, Northfield; ways and means, Mrs. E. C. Herzog, Brainerd.

NEW JERSEY
State Society

The officers were reported in the June JOURNAL.

The department heads are: Internal affairs, Tyce Grinwis, Maplewood; professional development, George W. Northup, Morristown; professional education, E. H. Johnson, Montclair.

The committee chairmen are: Ethics, Vernon Still, Elizabeth; meetings and programs, Ralph W. Davis, Jr., Audubon; facilities, Howard A. Lippincott, Morristown; exhibitors and college liaison, William C. Bugbee, Montclair; statistics and locations, Crill M. Williams, Linden; organization, Harry H. Davis, Washington; state membership, Henry Palmaffy; national membership, H. J. Hoyer, both of South Orange; insurance, J. Raymond McSpirit, Teaneck; editorial, C. B. Ackley, Union City; charter, H. E. C. Ulrich, Short Hills; constitution and bylaws, G. L. Peters, Cranford; public relations and speakers, Dr. Northup; public education on health, W. M. Hamilton, Roselle Park; Federal-state coordination, S. Szalay, Teaneck; licensure and regis-

tration, C. A. Furey, Cape May; institutions and agencies, E. T. Ferren, Camden; insurance, J. D. Dennis, Orange; veterans affairs, Paul S. Steinbaum, Palisades Park; public information, Dr. Davis; newspapers, periodicals, radio, Davis S. Steinbaum, Bayonne; vocational guidance, Dorothy H. Wilson, Montclair; Osteopathic Progress Fund, Harry F. Mintzer, Woodlynne; public and professional welfare, John C. Morresy, Long Beach; professional services, L. L. Walter, Atlantic City; hospitals and clinics, A. L. Hoffman, East Orange, organizational contacts, J. D. Dennis, Orange; public health and sanitation, R. D. Patterson, Spring Lake; maternal, infant and child care, H. T. Maxwell, Morristown.

NORTH CAROLINA

State Society

The officers were reported in the July JOURNAL.

The committee chairmen are: Legislation, T. T. Spence, Raleigh; public relations, Robert E. Goudy, Wilson; censorship and ethics, Thomas Rowlett, Concord; industrial and institutional service, Guy Funk, Winston-Salem; veterans affairs, S. Wallace Hoffman, Statesville; vocational guidance, J. Ella Hardin, Durham.

OHIO

Hospital Association

The officers are: President, C. M. Mayberry, East Liverpool; vice president, Mr. Paul Rieman, Marietta; secretary-treasurer, Ralph Lang, Columbus.

R. D. Ladd, Toledo, C. B. Gephart, and R. F. Dobeleit, both of Dayton, are trustees.

First District Academy (Toledo)

The officers were reported in the June JOURNAL.

The trustees are: Sevilla H. Mullet, Bryan, Lucian Jablowski, and Bernard Abel, both of Toledo.

The committee chairmen are: Vocational guidance, Charles L. Ballinger; publicity, Ralph D. Ladd, both of Toledo.

Second District Academy (Sandusky)

The officers were reported in the June JOURNAL.

J. A. Brandon, Lorain, V. B. White, Vermilion, and F. F. Yoder, Bellevue, are trustees.

The committe chairmen are: Membership, O. C. Ricelli; hospitals, Lester R. Mylander; program, J. E. Walker; insurance liability, Carle W. F. Koehler, all of Sandusky; ethics, H. L. Knapp; industrial and institutional service, R. A. Williams, both of Elyria; legislation, Dr. Yoder; vocational guidance, Harold A. Sifling, Lorain; public relations, A. R. Fuller, Fremont.

Sixth District Academy (Lima)

The officers were reported in the June JOURNAL.

The committee chairmen are: Membership and ethics, David Siehl, Sidney; hospitals, clinics, and statistics, H. R. Stallbohm; convention program, arrangements, and legislation, R. J. Biery; industrial and institutional service and public relations, H. E. Wisterman, all of Lima; vocational guidance and public health, Joe Clark, Delphos.

Ninth District Academy (Warren)

The officers were reported in the June JOURNAL.

The committee chairmen are: Membership, A. E. Smith, Youngstown; Osteopathic Progress Fund, H. E. Elston, Niles; ethics, M. W. Riegle, Salem; hospitals, John Hayes, East Liverpool; clinics, Robert Sowers, Warren; statistics, O. L. Wright, Girard; convention, Kenneth R. Mylar, East Liverpool; convention arrangements, K. S. Fleming, Youngstown; legislature, H. C. Seiple, Warren; vocational guidance, A. M. Friedman, Youngstown; public health, Sol Leibel, Campbell, industrial and institutional service, J. J. Mahanah; public relations, Edyth Varner, both of Warren; professional liability, David Gateman, North Jackson.

Eleventh Distict Academy (Dayton)

The officers are: President, George V. Gustin; vice president, J. Milton Zimmerman; treasurer, Leo Hoersting, all of Dayton; secretary, William D. Jacoby, Miamisburg.

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OKLAHOMA
Kay County

The officers are: President, H. W. Brooks, Kaw City; vice president, W. A. Laird; secretary-treasurer, O. R. Attebery, both of Ponca City.

The committee chairmen are: Membership, Dr. Laird; ethics, D. W. Streitenberger; hospitals, W. G. Hudson; statistics, Paul Benefield; legislation, D. A. Shaffer; vocational guidance, Dr. Attebery, all of Ponca City; clinics, W. W. Palmer; public relations, R. V. Barrick, both of Blackwell; industrial and institutional service, J. E. Baum, Tonkawa; public health, Dr. Brooks; convention arrangements, Frank C. Gaddy, Shidler; convention program, W. A. MacDonald, Newkirk.

Tulsa District

The officers are: President, G. M. Richardson; vice president, A. M. Jones; secretary-treasurer, E. C. Baird, all of Tulsa.

G. E. Fisher and S. H. Nolen, both of Tulsa, are trustees.

OREGON
State Society

The officers are: President, R. M. Gordon, Salem; first vice president, O. L. Hutchins, Pendleton; second vice president, C. G. Peterson, Albany; secretary-treasurer, D. E. Reid (re-elected), Lebanon.

B. B. Pruitt, Grants Pass, and A. V. Jackson, Forest Grove, are trustees.

The committee chairmen are: Public relations, G. A. Dierdorff; Osteopathic Progress Fund, W. W. Howard, both of Medford; public and professional welfare, L. L. Ackerson, St. Helens; vocational guidance, John S. Gilhousen, The Dalles; editor, and public health and education, Dr. Reid; insurance, I. J. Neher; veterans affairs, R. F. Kenaga; convention, H. D. Groves, all of Portland; hospitals, Dr. Jackson, membership and ethics, W. P. Goulding; Corvallis; graduate location, Dr. Gordon.

State Society Auxiliary

The officers are: President, Mrs. A. C. Rerson; first vice president, Mrs. G. A. Dierdorff (re-elected), Medford; second vice president, Mrs. E. A. Flaming, Dallas; secretary, Mrs. W. P. Goulding (re-elected), Corvallis; treasurer, Mrs. John S. Gilhousen, The Dalles.

PENNSYLVANIA
State Society

It has been announced in advance that the program for the annual meeting at Harrisburg September 24-26 is to include the following: "Clinical Application of the Rh Factor," K. T. Steigleman; "The Low-Back Problem; Clinical Consideration," Charles H. Brimfield; "The Low-Back Problem; Roentgen Consideration," George B. Hylander, all of York; "Errors and Omissions in the Therapy of the Female Climacteric," L. M. Yunginger, Bird-in-Hand; "Early Diagnosis of Uterine Cancer by the Vaginal Smear Technic," Boyd B. Button; "The Doctor's Bag," William Baldwin, Jr.; "Diarrhea," William Scott, all of Philadelphia; "Obesity—Etiology and Therapy," Harold L. Miller; "Menorrhagia—Medical Consideration," Stuart F. Harkness; "Menorrhagia — Surgical Consideration," William J. Davis; "A Program of Pediatric Immunization," George B. Stineman, all of Harrisburg; "Recent Advances in Therapy of Cardiovascular Disease," Charles M. Worrell, Palmyra; "The Osteopathic Concept in the Etiology of Peptic Ulcer," H. E. Davis, Lewisburg; "Isotopic Tracers," John McA. Ulrich, Steelton.

Berks County

The officers are: President, H. J. Chivian; vice president, H. E. Bowman; secretary-treasurer, R. H. Hammel, all of Reading.

Dauphin County

The officers are: President, William H. Lodge, Hershey; vice president, Randell R. Raeuchle; secretary-treasurer, J. Kenneth Miller, both of Harrisburg.

SOUTH DAKOTA
State Society

The officers are: President, M. C. Thompson, Watertown; vice president, W. F. Kessler, Springfield; secretary-treasurer, E. W. Hewlett (re-elected), Sioux Falls.

L. H. Eske, Groton, E. J. Failing,

Arlington, O. A. Jungman,. Scotland, and H. C. Goeken, Highmore, are trustees.

The committee chairmen are: Vocational guidance, L. S. Betts, Huron; convention program. L. T. Jackson, Ramona; membership, Dr. Hewlett; professional education, J. P. Calvird, Custer; hospitals, J. C. Bishop; ethics and censorship, A. M. Glasgow; Osteopathic Progress Fund, F. E. Burkholder, all of Sioux Falls; Federal-state coordinator, G. C. Redfield, Rapid City; exhibits, C. S. Betts, Huron; public health and education, M. W. Myers, Hudson; industrial and institutional service, L. L. Theberge, Newell; clinics, R. O. Eiselt, Flandreau; publicity, C. L. Timmons, Aberdeen; statistics, R. L. Beeghley, Kimball; professional development, T. H. Hoard, Beresford.

State Society Auxiliary

The officers are: President, Mrs. M. C. Thomson, Watertown; vice president, Mrs. W. Kessler, Springfield; secretary-treasurer, Mrs. C. C. Pascale, Centerville.

TENNESSEE

West

Mrs. E. R. Cleaves, Memphis, discussed laboratory procedures in general practice, L. D. Chesemore, Paris, spoke on osteopathic treatment of the acutely ill patient, and J. M. Moore, Jr., Trenton, spoke on building a practice at the meeting at Paris, June 29.

The next meeting is scheduled to be held at Union City September 11.

TEXAS

Hospital Association

The officers are: President, E. E. Blaciwood, Comanche; president-elect, Milton Gafney, Tyler; secretary-treasurer, William Gribble, Jr., Houston.

Harris County

The officers are: President, J. Ralph Cunningham; vice president, Stanley Hess; secretary-treasurer, C. C. Carter, all of Houston.

Tarrant County

The officers are: President, George Luibel; vice president, H. G. Buxton, both of Fort Worth; secretary-treasurer, Raymond D. Fisher, Handley.

The committee chairmen are: Membership, J. R. Thompson; ethics, L. L. Hamilton; clinics, V. L. Jennings; statistics, J. O. Carr; legislation, Phil Russell; vocational guidance, Catherine Kenney Carlton; public health, H. M. Walker; hospitals, Roy B. Fisher, all of Forth Worth; public relations, Dr. Luibel.

District Two (North)

The officers were reported in the June JOURNAL.

The committee chairmen are: Membership, George Luibel, Forth Worth; ethics, Louis Logan; legislation and public health, Robert E. Morgan; vocational guidance, Mary Lou Logan; industrial and institutional service, Robert Dean; public relations, John Drew, all of Dallas; hospitals, clinics, and statistics, Charles M. Hawes, Dennison; convention program, Ward Huetson, Denton.

District Six (Southeast)

H. George Grainger, Tyler, spoke on poliomyelitis at the meeting at Galveston, June 6.

The officers are: President, W. H. Sorenson, Port Arthur; vice president, Ben Souder; secretary-treasurer, G. S. Rogers (re-elected), Galveston.

District Eight (Nueces)

The officers are: President, James Tyree, Corpus Christi; vice president, A. Scharff, McAllen; secretary-treasurer, J. M. Auten, Aransas Pass.

UTAH

State Society

The officers are: President, Wilford G. Hale, Logan; vice president, E. F. Water; secretary-treasurer, Alice E. Houghton, both of Salt Lake City. All were re-elected.

VIRGINIA

State Society

The officers were reported in the June JOURNAL.

The committee chairman are: New membership, E. B. Flickinger, Winchester; publications and statistics, Ralph M. Stokes, Jr., Portsmouth; program, Fred A. Gedney; public and professional welfare, B. D. Turman; Federal-state coordinator and legislation, H. S. Liebert, all of Richmond; vocational guidance and professional education, Leslie R. Luxton, Waynesboro; Osteopathic Progress Fund, Felix Swope, Alexandria; clinics, C. P. Dickerman, Staunton; public health and safety, M. F. Stephens, Lynchburg; industrial and institutional and insurance service, O. L. Miller, Harrisonburg; veterans rehabilitation,

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WASHINGTON
State Society

The officers are: President, W. A. Newland; president-elect, E. E. LaCroix, both of Seattle; vice president, D. E. Johnson, Tacoma; treasurer, E. D. Mosier (re-elected), Puyallup; secretary, H. F. Kale (re-elected), Seattle.

The trustees are: K. D. Kohler, Everett; R. S. Fidler, Seattle; R. S. Koch, Olympia; Oville M. Herr, Wenatchee; H. L. Chadwick, Spokane; Charles L. Wilson, Yakima; and H. L. Davis, Walla Walla.

The committee chairmen are: Public affairs, legislation and Osteopathic Progress Fund, C. H. Baker, Seattle; ethics and censorship, M. R. Kint, Bremerton; radio, H. V. Hoover, Tacoma; editorial contact, Dr. Kale; industrial and institutional service, S. M. Pugh, Everett; public health, H. G. Bauer, Seattle; Federal and state bureaus and professional affairs, Dr. LaCroix; professional development, Margaret Gregory, Tacoma; hospitals and clinics, John H. Thorp; vocational guidance, A. E. Borchardt; manual of procedure, A. B. Cunningham, all of Seattle; finance, Dr. Mosier; veterans affairs, Dr. Kohler; honorary membership, C. B. Utterback, Tacoma.

WEST VIRGINIA
State Society

The program announced in advance for the refresher course to be held at Charleston, September 25, 26 is to include speeches by Paul E. Kimberly and Byron E. Laycock, both of Des Moines. W. F. Whitright, Charleston, is program chairman.

Ohio Valley

In addition to the officers reported in the July JOURNAL, John A. Matousek is vice president.

Parkersburg District

R. P. Southard, Canton, Ohio, spoke on "Surgical Diagnosis in the Office" at the meeting at Parkersburg, June 10.

Southern District

The officers are: President, Roland P. Sharpe, Mullens; vice president, Mervin E. Meck, Pineville; secretary-treasurer, J. M. Laing (re-elected), Beckley.

WISCONSIN
State Society

The officers were reported in the June JOURNAL.

The department heads are: Professional affairs, E. G. Anderson, Janesville; public affairs, W. L. Madson, Rhinelander; public and professional welfare, R. J. Dennis, Milwaukee; district affairs, D. A. Farnum, Sheboygan.

The committee chairmen are: Hospitals and clinics, P. A. Atterberry; ethics and censorship, M. G. Ellinger, both of Milwaukee; membership, R. B. Hammond, Appleton; vocational guidance, H. R. Bullis, Milwaukee; industrial and institutional service, H. C. Hagmann, Sturgeon Bay; speaker's bureau, D. Beryl Mack, Madison; mental health, R. F. Freund, Beaver Dam; press, V. L. Von Wald; radio, H. F. Beam; public health, Harold E. Kerr; exhibits, J. H. Kettner, all of Milwaukee; health and accident insurance, J. E. Rogers, Oshkosh; professional liability insurance, A. M. Kelchner, Sullivan.

Fox River Valley

The officers are: President, Helen Calmes, Appleton; vice president, Catherine Clark, Oshkosh; secretary-treasurer, C. E. Geisse (re-elected), Fond du Lac.

The committee chairmen are: Hospitals and clinics, Paul A. Allen, Waupun; ethics and censorship, A. V. Mattern, Green Bay; membership, R. B. Hammond, Appleton; vocational guidance, Wayne Enderby, Green Bay; industrial and institutional service, H. C. Hagmann, Sturgeon Bay; speakers, Dr. Calmes; press, Dr. Geisse; radio, A. W. Muttart, Neenah; public health, R. W. Parish, Manitowoc.

Madison District

The officers were reported in the July JOURNAL.

The committee chairmen are: Hospitals and clinics, C. S. Randels, Hustisford; ethics and censorship, H. V. Vandeveer, Viroqua; membership, E. R. Kettner, Evansville; vocational guidance, T. R. Knowlton, Beaver Dam; industrial and institutional service, O. W. Lorch, Fort Atkinson; speakers, D. Beryl Mack; press, R. B. Gordon; radio, H. J. Morrell, all of

Madison; public health, J. R. Bechtel, Janesville.

Milwaukee District

The officers are: President, H. R. Bullis; vice president, R. J. Dennis; secretary-treasurer, Carl V. Blech, all of Milwaukee.

The committee chairmen are: Hospitals and clinics, P. A. Atterberry; ethics and censorship, M. G. Ellinger; membership, J. S. Crane; vocational guidance, Dr. Bullis; industrial and institutional service, I. J. Ansfield; speakers, R. P. Bonham; press, V. L. Von Wald; radio, H. F. Beam; public health, Harold E. Kerr, all of Milwaukee.

Northwest District

The officers are: President, C. T. Kyle, Menomonie; secretary-treasurer, J. H. Paul, Eau Claire.

The committee chairmen are: Membership, D. A. Bartingale; legislation, E. C. Murphy, both of Eau Claire; ethics, E. C. Mossman, Chippewa Falls.

SPECIAL AND SPECIALTY GROUPS

Central States Osteopathic Society of Proctology

The officers are: President, Floyd E. Magee, Indianapolis; vice president, W. M. Walrod, North Manchester, Ind.; secretary-treasurer, E. R. Horton, Fort Wayne, Ind.

Inland Empire Academy of Applied Osteopathy

"Formation and Function of Cerebrospinal Fluid" was presented by R. S. McVicker, The Dalles, Ore.; Mr. A. Estling of the Pacific Supply Company, presented two films: "Milwaukee Workshop" and "New Frontier of Medicine," and Mr. Roy Lee, sociologist at Washington State Penitentiary, discussed the psychological problems faced by spastic individuals at the meeting at Walla Walla May 15.

The next meeting is scheduled to be held at Bonners Ferry, Idaho.

Interstate Cardiac Society

The officers are: President, L. O. Wilkins, Akron, Ohio; secretary-treasurer, L. J. Green, Lansing, Mich.

Regional Osteopathic Convention

It has been announced in advance that the program for the meeting to be held at Winnipeg, Manitoba, August 13, 14, is to include the following: "Structural Diagnosis and Treatment," J. S. Denslow, Kirksville, Mo.; "Compensatory Mechanics and the Vegetative Nervous System," Byron E. Laycock, Des Moines, Iowa; "Proctological Examination and Diagnosis from the General Practitioner's Standpoint," H. C. Montague, Muskogee, Okla.; and demonstrations in regional technic by Drs. Laycock and Denslow.

Clinical studies have proved the therapeutic value of balanced estrogenic replacement.

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State and National Boards

ARIZONA

Basic science examinations September 21. Address Francis A. Roy, secretary, Basic Science Board, University of Arizona, Tucson.

COLORADO

Basic science examinations September 15, 16. Applications must be on file before September 1. Address Esther B. Starks, D.O., secretary, Basic Science Board, 1459 Ogden St., Denver 3.

Professional examinations October 5. Address C. Robert Starks, D.O., president, State Board of Medical Examiners, 1459 Ogden St., Denver 3.

CONNECTICUT

Basic science examinations October 9. Applications must be on file 2 weeks prior to date of examination. Address Mr. M. G. Reynolds, executive assistant, State Board of Healing Arts, 250 Church St., New Haven 10.

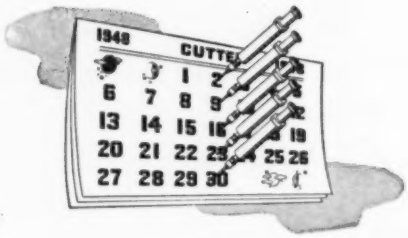
Professional examinations November 9. Address Robert Nicholl, D.O., secretary, Board of Osteopathic Examination and Registration, 5 Field Pt. Rd., Greenwich.

DISTRICT OF COLUMBIA

Basic science examinations in October. Professional examinations in November. Address George C. Ruhland, M.D., secretary, Commission on Licensure, Room 6150, East Municipal Bldg., 300 C. St., N.W., Washington.

FLORIDA

Basic science examinations in November. Applications must be filed 15 days prior to date of examination. Address M. W. Emmel, D.V.M., sec-



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Examinations October 13. Address Mabel A. Runyan, D.O., secretary, Board of Osteopathic Examiners, 2333 C. Kalakaua Ave., Honolulu 30.

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Professional examinations November 11. Applications must be filed 15 days prior to the date of examination. Address Estella S. Mulliner, director, Bureau of Occupational License, Department of Law Enforcement, Boise.

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Examinations October 5-7. Address the osteopathic examiner, Oliver C. Foreman, D.O., 58 E. Washington St., Chicago.

IOWA

Basic science examinations October 12. Address Ben H. Peterson, Ph.D., secretary, Board of Basic Science Examiners, Coe College, Cedar Rapids.

MAINE

Examinations November 9, 10 at the State House, Augusta. Address Albert E. Chittenden, D. O., secretary, Board of Osteopathic Examination and Registration, 50 Goff St., Auburn.

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Examinations in October. Address Walter H. Waugaman, D.O., secretary, State Board of Osteopathic Examiners, 33 S. Centre St., Cumberland.

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Examinations November 9. Applications must be on file 2 weeks prior to date of examination. Address H. Quimby Gallupe, M.D., secretary, Board of Registration in Medicine, State House, Boston 33.

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Basic science examinations October 5, 6. Address Raymond Bieter, M.D., secretary, State Board of Examiners in the Basic Sciences, 126 Millard Hall, University of Minnesota, Minneapolis 14

Professional examinations September 14. Address George F. Miller, D.O., secretary, State Board of Osteopathic Examiners, 601 Dayton Ave., St. Paul 2.

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Examinations in September. Address Asa Willard, D.O., secretary, Board of Osteopathic Examiners, Wilma Bldg., Missoula.

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Examinations September 9, 10. Address Deering G. Smith, M.D., State House, Concord.

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Professional examinations October 7. Basic science examinations in November. Address Mr. Thomas B. Casey, Chief, Division of Professional Regulation, State Office Bldg., Providence.

TEXAS

Examinations in November. Address H. F. Connally, M.D., secretary, State Board of Medical Examiners, 1305 Amicable Bldg., Waco.

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Basic science examinations September 25 at the Assembly Chamber, State Capitol, Madison. Applications must be filed before September 18. Address Professor W. H. Barber, secretary, Board of Examiners in the Basic Sciences, Ripon College, Ripon.

WYOMING

Examinations October 4, 5. Address G. M. Anderson, M.D., secretary, State Board of Medical Examiners, State Capitol, Cheyenne.

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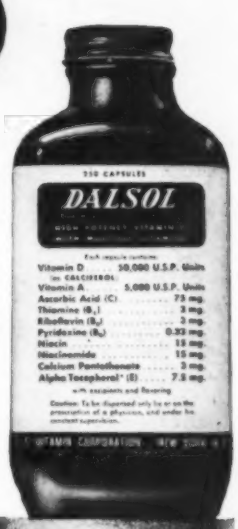

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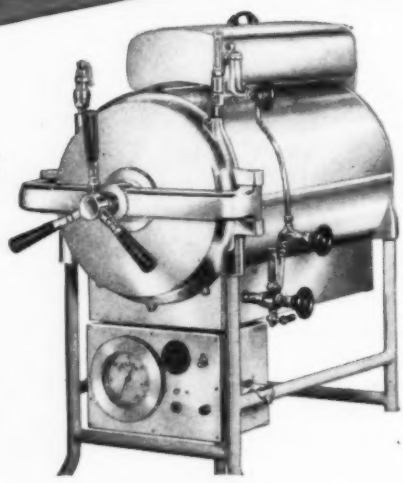

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Bamford, Charles L., from Cleveland, Ohio, to 262 Massachusetts Ave., Detroit 3, Michigan

Beasley, H. Earle, from 358 Commonwealth Ave., to 189 Bay State Road, Boston 15, Mass.

Becker, Alan R., from 601 First St., to 335 W. Cortland St., Jackson, Mich.

Bell, John C., from 163 S. Larchmont Blvd., to 317 N. Gower St., Los Angeles 4, Calif.

Bennett, D. Clinton, from Los Angeles, Calif., to 1800 Fair Oaks Ave., South Pasadena, Calif.

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*Perry, Layne, D. O.: *Faulty Posture As An Important Cause of Some Types of Anorectal Pathology*: Osteopathic Profession: 14 : 28-52, (Oct.) 1946.

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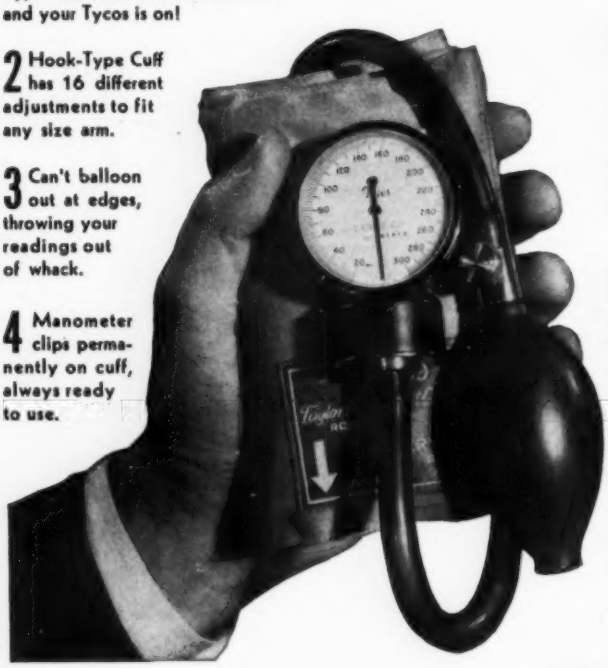

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It consists of abstracts of all the significant articles on male hormone therapy published over a 4-year period. All of the material is taken from accepted medical publications.

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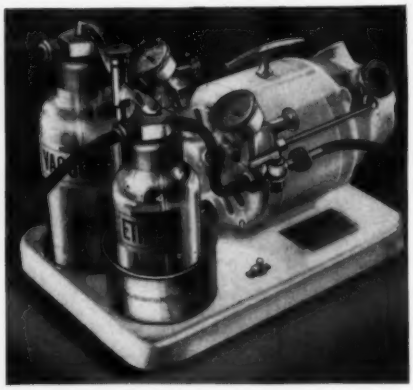

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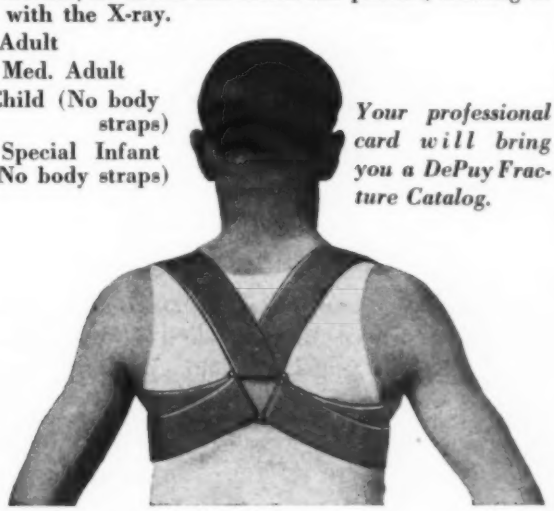

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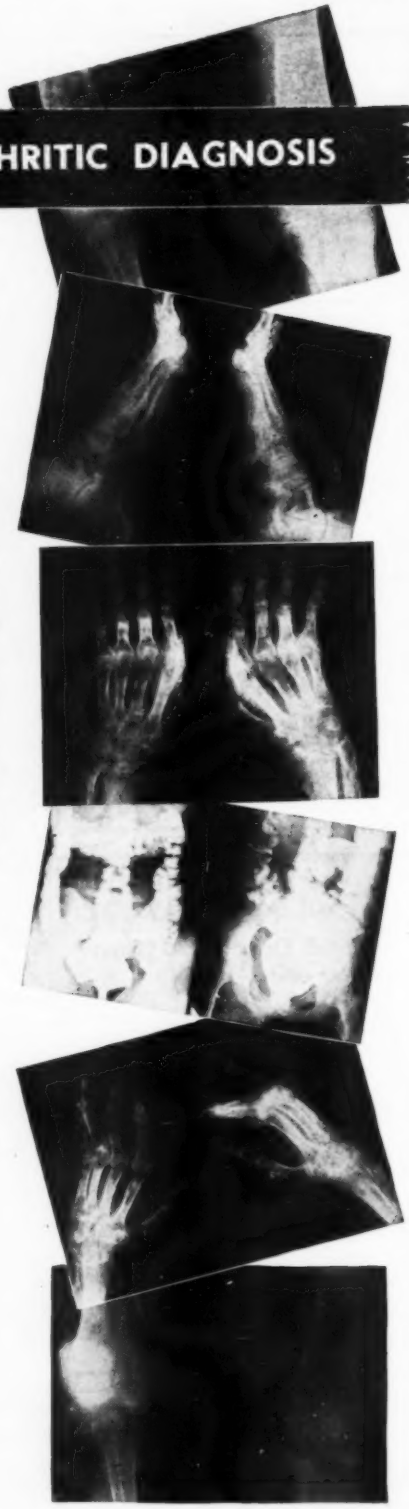

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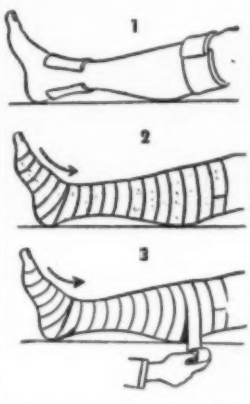

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